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Number 2.

FEBRUARY, 1895.

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TEXTILE WORLD

The Philadelphia Textile School, with illustrations - - Page 26

	PAGE
Prominent Manufacturers. VIII.—Jas. L. Branson (with portrait)	19
Wm. P. Warren	31
The American Market from an English Standpoint	25
The Cotton Market	23
The Wool Market	24
The Southern Movement	23
New Machinery Coming on the Market	36
Questions and Answers	33-34
Textile Patents	35
Cotton Department	37
Woolen Department	43-51
Knitting Department	52-61
Power Department	62-68
Colors and Dyeing	70-75
Yarn Department	97-111
Mill News	85-123
Mills and Machinery For Sale, etc.	8-9
Situations Wanted	125-127

Buyers' Index, - - Page 10.
Alphabetical Index, - - " 15.

GUILD & LORD, Publishers, 620 Atlantic Avenue, Boston, Mass.

GRANGER FOUNDRY & MACHINE CO.,

PROVIDENCE, R. I.

Bleaching, Dyeing, Drying and Finishing Machinery.

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TENTERING MACHINES

With Patent Self-Feeding Clips.

Patent Combination Rolls

OF

HUSK AND COTTON.

Calenders, Mangles, Drying Machines, Tentering Machines, Hydraulic Presses, Etc.

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Short and Long Chain Dyeing, Sizing and Drying Machines.

PATENT

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Established 1820. Incorporated 1889.

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Finishing Machinery

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COMPANY,

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TENTERING MACHINES

Of Various Patterns.

CLAMP OR PIN CHAIN

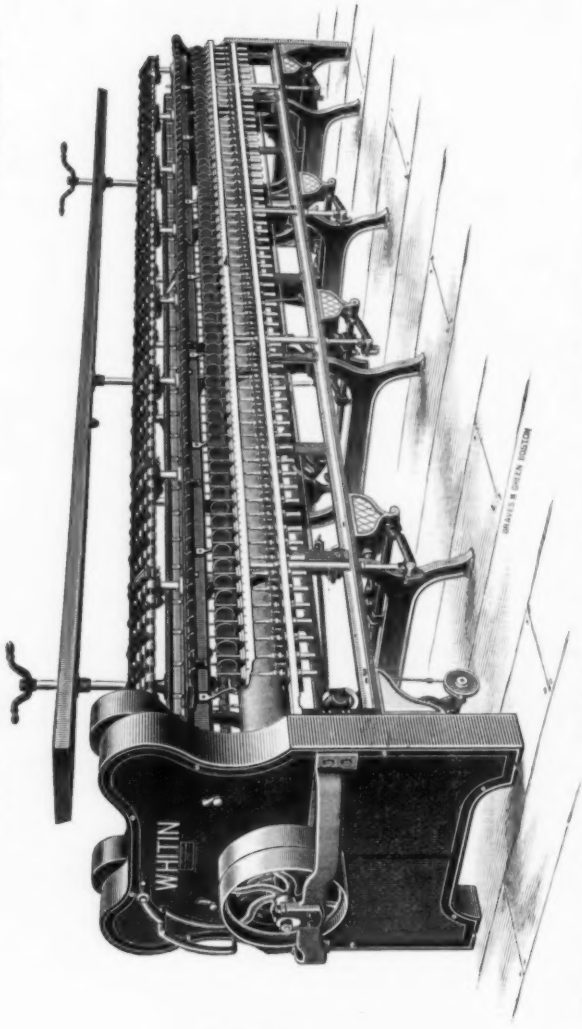
FOR

Worsteds,
Woolens,
Lawns,
Ginghams,
Plaids,
Etc., Etc.

The Whitin Machine Works,

Revolving Flat Carding Engines,
Long Chain Quilling Machines,
Wet and Dry Twisters,
Looms,

Railway Heads,
Drawing Frames,
Reels,
Spoolers.



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BUILDERS OF

COTTON MACHINERY,

Whitinsville, Mass.

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Are economizing to a marked extent by adopting larger rings and larger traverse on their frames.
We make a special business of changing over frames, and manufacture the necessary rings and separators. With this class of work the

Rhoades-Chandler Separator

is the only device successfully used.

Many manufacturers fail to keep up with the times, and do not realize the remarkable advance we have made in Temples Our latest patterns give universal satisfaction.

The 49D Rabbeth Spindle is now manufactured by four large cotton machinery builders We recommend it unhesitatingly.

There is no reason not prompted by false econ my that could persuade a mill to pass us by on

Warpers and Spoolers.

Our Twisters are simply unequalled. They fairly bristle with new ideas.

Now then as to

Looms:—

Nothing but the sense of duty prompts us to refer to them. It is a grave question whether we should invite more orders under the circumstances. A success may prove embarassing when it comes so suddenly.

Geo. Draper & Sons,

HOPEDALE, MASS.

COTTON OPENERS AND LAPPERS

Atherton Machine Co. LOWELL MASS

PETTEE MACHINE WORKS,

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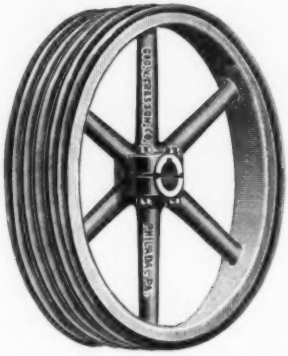
Original American Builders of **Revolving Flat Carding Engines.**

OVER 3000 SOLD.

GEO. V. CRESSON CO.,

Power Transmitting Machinery.

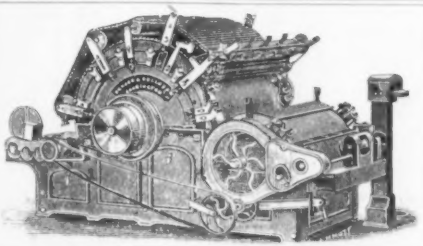
Rope Wheels for Single Rope or Wound System,



For Cotton, Manilla, Hemp or Wire Ropes.

18th St. and Allegheny Ave.,

PHILADELPHIA, PA.



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(LIMITED),

PAWTUCKET, - R. I.

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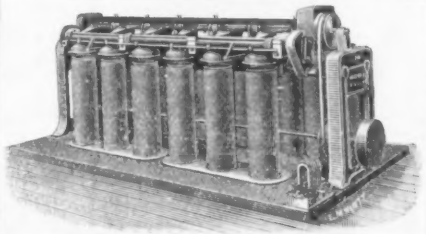
The Simplest and Most Accurate. Greatest Production. Best Quality. Least Waste.

Electric Stop-Motion Drawing.

The quality of the sliver produced cannot be surpassed. Waste, "single" and roller laps are prevented, production increased, and great saving effected.



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All made from entirely new patterns and containing many valuable patented improvements.

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New patented Differential motion, New Arrangement of Cone Drums, New System of Balancing top or bobbin rail, etc.

All parts of above machines are made by special tools and are exact duplicates.

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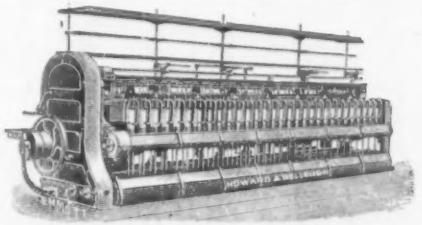

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MANUFACTURERS OF

Improved Cotton and Worsted Roving Machines,

Cotton Combers and Lap Winders, Worsted Spinning Frames and Twisters, Fluted Rolls, Flyers, Spindles, Gears, Bolsters, Caps, Tubes, Etc., Etc.

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MULES. LOOMS.

MASON
MACHINE WORKS
COTTON MACHINERY,
TAUNTON,
MASS.

SPINNING FRAMES.

J. B. PARKER MACHINE CO.

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The Bancroft Mule, The Clinton Yarn Twister,
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SURFACE GROUND OR NEEDLE POINT.

Estimates Given & Orders Filled Promptly at each Factory

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WORCESTER · MASS ·

Latest and Best Rub Motion FOR WOOL CARDS

IN THE WORLD. Patented July 24, 1894.

It has a positive Quarter Motion which can be run at any speed desired, with no vibration whatever, and requires no bracing. It assures, positively, evener, better and stronger yarn to the manufacturer.

MANUFACTURERS, SUPERINTENDENTS AND CARDERS ARE INVITED TO SEE IT IN OPERATION AT

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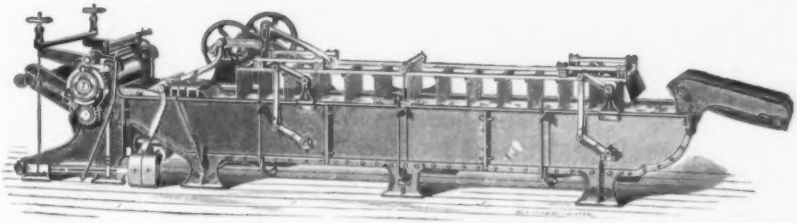
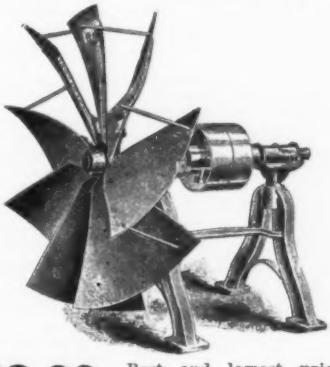
Preparing and Drying Machinery.

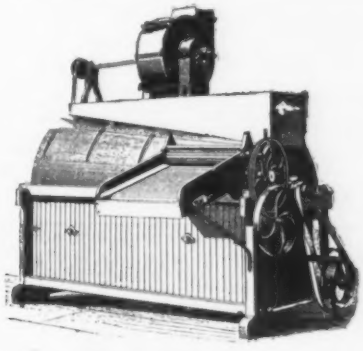


NEW PARALLEL RAKE WOOL WASHER.

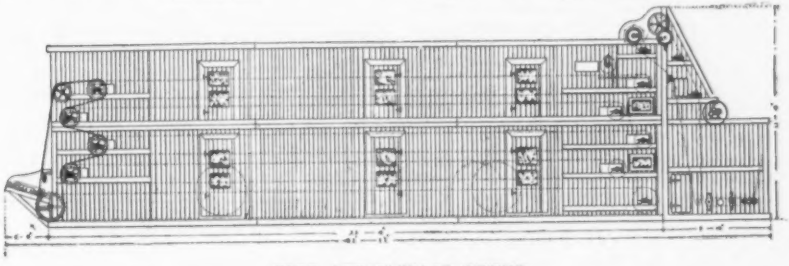
In addition to the above, we are the only builders of **Four Rake and Hydraulic Washers.** We guarantee our machines to be the **Lightest Running** and to require the **Least Repair** of any on the market. **Production and results are second to none.**



$33.00. Best and lowest priced Blower or Suction Fan on the market.



IMPROVED CONE DUSTER.
Exterior View Right-Hand Machine with Fan.



FIVE APRON WOOL DRYER.

We also Manufacture Multiple and Single Apron Dryers, Burr Pickers, Mixing Pickers, Crabbers, Self-feeders for Cotton and Wool; Breasts and Burr Machines for Cards. Wire Cylinders of all kinds repaired and Lickers-in for Cotton Cards a specialty.

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Graniteville, Mass.

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Cotton and Woolen Machinery.

Largest lot in store to be found in this country. Storehouses with over two acres of floorage.

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DEALER IN NEW AND SECOND-HAND

MACHINERY,

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6 Self-acting Mules.
30 Knowles Looms—92 and 100 inch.
30 Crompton Looms.
8 Back Winders.
4 Ring Twisters—3 1-2 inch ring with Loop and Boretting Attachment.

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All in Good Condition. Catalogues Furnished on Application.

WILSON H. BROWN, Germantown, Pa.

Cooper's New Combination

CARDING AND SPINNING CALCULATIONS.

A CHART COVERING ALL CLASSES OF WORK.

Tells the size to make the roping on the cards, and the number of inches of roping to be delivered by the rollers per stretch of draw on the jack or mule. Table No. 2 is for extra fine work. Table No. 3 is an 18 yard yarn or roping table, giving the number of yards to the pound, the next giving the run, and another the grains to 18 yards of yarn or roping. The chart also contains diagrams illustrating a new method for drafting in woolen spinning. Sent on receipt of $1.00 by F. R. COOPER, Montmorency Falls, Quebec.

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Questions answered concerning cloth constructions, also Speed of Machines required for Carding, Spinning, Weaving and Finishing **Woolen Goods**, Dissecting of Patterns. Estimations on stock, Machinery, etc. Write for redneed terms to

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Middleboro, Mass.

WANTED!

A member of our Overseers' Bureau who is **A Good Alizarine Dyer**

and who is well up in Slubbing.

Must have experience on worsted goods. Good salary and position to right man. Address, T. F. BRASSIL, care TEXTILE WORLD.

WANTED!

A business man of experience with capital to act as

Manager of an Established Manufacturing Business.

Apply to Y, TEXTILE WORLD.

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Unfailing water power at a very low price. Abundant supply of reliable operatives. Railroad track to the mill yard. Exemption from taxation for 10 years. Address J. W. HARMON, Agent Bodwell Water Power Company, Old Town, Maine.

FACTORY SITES FOR SALE OR LEASE.

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Cheap water power transmitted by electricity to all departments of the factory, saving in shafting and friction of operating any other than the machinery actually in use. Every essential. Population 50,000 abundant help. Address, **J. B. BAR-THOLOMEW, Topeka, Kansas.**

WANTED!

Manufacturers about changing location write for inducements to

The Southern Land & Development Co.,
909 Drexel Building,
PHILADELPHIA, - PA.

CORRESPONDENCE SOLICITED.

Parties having Cotton Machinery of capacity, say from 2 to 10,000 spindles, with requisite looms and desiring to move south into a section suitably located for cotton manufacturing enterprises, will do well to correspond with the undersigned who have a small but well equipped cotton mill, which they wish to enlarge. This mill is beautifully located on 30 acres of land adjoining the town. Correspondence solicited. Address, C. L. STADTLER, President Excelsior Manufacturing Company, CUERO, De Witt Co., TEXAS.

Wanted! Position Superintendent

IN COTTON YARN MILL.

Have practical knowledge of Boilers, Steam Engine, Water Power, Electric Plants, Carding, Spinning, Combing, Twisters; also have had experience on Mechanical Draughting and Machinist Work. Have been with one of the modern mills of the State of Massachusetts. Address, P 130, care TEXTILE WORLD.

MILL FOR SALE AT A BARGAIN.

A Three Set Knitting Mill, in the centre of the knit goods trade of New York; best of shipping facilities, skilled help, 48-inch cards and all corresponding machinery in good condition. Can be bought on easy terms; good reason for selling; ample room to enlarge. Will be sold with or without machinery. Correspondence held in strict confidence if desired. Address, HENRY HUDSON, 523 Union St., Hudson, N. Y.

WANTED!

A Superintendent FOR AN **Underwear Mill.** One who thoroughly understands the business. Apply with reference to W, care TEXTILE WORLD.

BID FOR YARN WANTED.

I want a bid from a Southern mill on a quantity of white, soft cotton yarn on cones, for hosiery. For full particulars address, W. S. C., care TEXTILE WORLD.

COTTON MILL WANTED.

The Chamber of Commerce, of CHATTANOOGA, TENN., wish to correspond with parties having capital and experience, with a view to locating one or more modern Cotton Mills at or near Chattanooga.

The conditions are favorable. 9 railroads, and line of steamers to St. Louis on Tennessee River; cheap, reliable and plentiful labor; coal 75 cents to $1 40 per ton; good water works; mild and equable climate, (average, 60 degrees;) building material cheapest in United States; low taxes; favorable public sentiment; right on the edge of the cotton fields; healthy climate.

Address,

J. W. FAXON, President Chamber Commerce,

CHATTANOOGA, TENNESSEE.

DON'T GO SOUTH!

At this time, when so many of New England's best mills are favorably considering the unquestioned advantages of the South for cotton manufacturing, it seems wise to give a few words of timely warning.

Don't Go South unless you wish to increase dividends.

Don't Go South unless you wish to save 75 per cent. in cost of motive power, lighting and heating.

Don't Go South unless you wish to be free from labor troubles, restrictive legislation and exhorbitant taxation.

The Chattanooga Company,

LIMITED,

Owns 20,000 acres of valuable COAL, TIMBER and MINERAL LANDS, available for the location of Cotton Mills and other industries, fronting ten miles on the Tennessee River, opposite the city of Chattanooga.

This Company is prepared to offer splendid inducements to meritorious industries of all kinds located upon their property. Address, T. J. NICHOLL, Gen'l Manager, Room 62 Times Building, Chattanooga, Tenn.

Chattanooga, Tennessee,

Presents more advantages for industrial enterprise than almost any other city on the Continent.

The climate is particularly adapted for cotton manufactures.

The lands owned by The Chattanooga Company, Limited, are from one to six miles from the centre of this city, high, rolling, healthy, and particularly suitable for the homes of operatives. Quick electric communication across great steel bridge, with the city. Further information cheerfully given.

Cotton Mill Sites in the South.

The undersigned offer special inducements to a substantial Cotton Mill Plant desiring a good location in the South. Situate in the center of the Prize Cotton County of **Georgia**, on line of the great railroad between New York and New Orleans, with abundance of water and fuel at low rates. There is abundance of white labor, 2 excellent colleges, public schools, churches, etc., in the city. A site of from 10 to 50 acres will be donated to a solid company that is prepared to erect a large Cotton Mill. Particulars can be obtained from

JAS. W. DRAPE & CO., 313 Wood Street, Pittsburg, Pa.,
or Capt. W. J. McCLURE, Secy, LaGrange, Ga.

A Cotton Mill Wanted.

A Georgia town wants a Cotton Mill; is willing to donate site, cash bonus and take some stock. Parties wanting to remove mill to South, or a good investment, address for information as to location, freight rates, coal, etc., SECRETARY, care Textile World.

KNITTING MILL For Sale Cheap.

Four Set Mill arranged for running carding and spinning, day and night, with knitting and finishing machinery in proportion.

Has an average production of 160 dozen, per day. Abundant water power, good freight facilities, and well organized help. Now running on orders. 21 good tenements. Sufficient reasons given for wishing to sell. Address, T. F., P. O. Box 1727, New York.

WINSLOW BROTHERS,

WOOL PULLERS AND MANUFACTURERS OF SHEEP LEATHER,

Calf, Sheep and Lamb Rollers, Wool Clearers.

NORWOOD, MASS.

BUYERS' INDEX.

Advertisers whose names do not appear under desired he adings will please notify the publishers. Such omissions are accidental, not intentional.

Alphabetical Index to Advertisements follows this Classified List.

Architects and Mill Engineers.
Ferguson, John W, Patterson, N. J.

Automatic Boiler Feeds.
Cornell, F. H. Co, 461 W. 14th St, New York.
D'Este & Seeley Co, 29 Haverhill St, Boston.

Balling Machine.
Torrance Mfg. Co, 18 Davis St, E. Newark, N. J.

Baskets, Raw Hide, etc.
Barlow, John W, Lawrence, Mass.

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Alexander Bros., 410 No. 3d St., Phila., Pa.
Danforth Belting Co, 221 Chestnut St, Phila, Pa.
Fell, Geo. & Son, Bolton, England.
Rhoads, J. E, & Sons, 239 Market St, Phila, Pa.
See also Mill Supplies.

Belt Dressing.
Alexander Bros, 410 No. 3d St, Phila, Pa.
Danforth Belting Co, 221 Chestnut St, Philadel hia, Pa.
Rhoads, J. E, & Sons, 239 Market St, Philadelphia, Pa.

Bobbins, Spools, Shuttles, Etc.
Arnold, O. S, Killingly, Ct.
Baldwin, James, Co, Manchester, N. H.
Vermont Spool & Bobbin Co, Burlington, Vt.

Boiler Compounds.
Cornell, F. H. Co, 461 W. 14th St, New York City.
Imperial Chemical Co, 432 Market St, Phila, Pa.
Lord, G. W, 316 Union St, Phila, Pa.

Boxes, Paper.
Palmer, J. S, 35 Wistar St, Germantown, Pa.

Boxes, Wooden.
Pearson, J. T, Kensington, Pa.

Burr Pickers.
Sargent's, C. G, Sons, Graniteville, Mass.

Card Clothing.
American Card Clothing Co, Worcester, Mass.
Radey, Cunningham & Co, Phila, Pa.

Card Cutters.
Hand, Fredk, & Co, 159 Van Houten St, Paterson, N. J.

Calico Printers' Machinery and Supplies.
Hope, John, & Sons, Eng. Mfg. Co, Elmwood, Providence, R. I.
New Bedford Copper Co, New Bedford, Mass.
See also Dyeing, Bleaching Machinery, etc.

Carpet Machinery.
Altemus, W. W, & Son, 2816 N. 4th St, Phila, Pa.
Crompton Loom Works, Worcester, Mass.
Furbush, M. A, & Son, Machine Co, Phila, Pa.

Chemical Laboratory.
Genth, F. A.

Combs, Hackles, Pins, Etc.
Townsend, Thos, Manchester, Conn.

Copper Print Rollers.
New Bedford Copper Co, New Bedford, Mass.

Copper Work for Dyers.
Brabender, Chas, & Son, Paterson, N. J.
Oat, Jos. & Sons, 232 Quarry St, Phila, Pa.

Cotton.
Barry, Thayer & Co, 32 India St, Boston, Mass.
Blaisdell, S, Jr, Co, Chicopee, Mass.
Capelle, Herman, cor. Leonard St. and W. Broadway, N. Y.

Cotton Machinery.
Atherton Machine Co, Lowell, Mass.
Altemus, W. W, & Son, 2816 N. 4th St, Phila, Pa.
Draper, Geo, & Sons, Hopedale, Mass.
Howard & Bullough American Machine Co, 281 Congress St, Boston, Mass.
Kilburn, Lincoln & Co, Fall River, Mass.
Mason Machine Wks, Taunton, Mass.
Pettee Machine Wks, Newton Upper Falls, Mass.
Providence Machine Co, Providence, R. I.
Whitin Machine Wks, Whitinsville, Mass.

Cotton Openers and Lappers.
Atherton Machine Co, Lowell, Mass.
Howard & Bullough American Machine Co, 281 Congress St, Boston, Mass.

Damper Regulators.
D'Este & Seeley Co. (Curtis), 29 Haverhill St, Boston, Mass.
Locke Regulator Co, Salem, Mass.

Designers.
Designer, Box 222, Brooklyn, N. Y.
Hand, Fredk, & Co, 159 Van Houten St, Paterson, N. J.
Woolens, Box 719, Middleboro, Mass.

Dryers.
Philadelphia Textile Machinery Co, Philadelphia, Pa.
Sturtevant, B. F. Co, 34 Oliver St, Boston, Mass.

Dusters.
See Wool and Waste Dusters.

Dye House Clogs.
Wildman, Jos, 1919 N. Front St, Phila, Pa.

Dyeing, Bleaching and Finishing.
Greene & Daniels Mfg. Co, Pawtucket, R. I.
Greenwood, R & Bault, Frankford, Pa.
Home Bleach & Dye Works, Pawtucket and Valley Falls, R. I.
Kensington Dye Works, Kensington, Pa.
Perseverance Dyeing Co, Woonsocket, R. I.
Providence Dye Works, Kensington, Pa.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Napping Machine Co, Williamstown, Mass.
Butterworth, H. W, & Sons Co, Phila, Pa.
Delahunty Dyeing Machine Co, 152 N. Front St, Phila, Pa.
Dill Spool Support Co, Hancock St. and Lehigh Ave, Phila, Pa.
Gessner, Ernst, 5136 Viola St, Phila, Pa.
Granger Foundry & Machine Co, Providence, R. I.
Lincoln & Co, 54 Arch St, Hartford, Ct.
Parks & Woolson Machine Co, Springfield, Vt.
Phenix Iron Foundry, Providence, R. I.
Sargent's, C. G, Sons, Graniteville, Mass.
Sturtevant, B. F. Co, 34 Oliver St, Boston, Mass. (Drying.)

Dyestuffs and Chemicals.
Anchor Color Mfg. Co, 464 Cherry St, N. Y.
Atteaux, F. E, & Co, 172 Purchase St, Boston, Mass.
Avery Lactart Co, 169 Devonshire St, Boston, Mass.
Beach & Co, Hartford, Ct.
Bischoff, & Co, 80 Front St, N. Y.
Browning & Bros, 42 N. Front St, Phila, Pa.
Bullock & Crenshaw, 528 Arch St, Phila, Pa.
Coyne, Geo. S, 116 N. Front St, Phila, Pa.
Gilbert Bros. & Co, 202 Purchase St, Boston.
Hanna, W. W, 52 N. Front St, Phila, Pa.
Harway Dyewood & Extract Mfg. Co, 184 Front St, N. Y.
Hill, Edward's, Son & Co, 25 Cedar St, N. Y.

Holliday, Read & Sons, Ltd, 7 Platt St, N. Y.
Horsfall, Jonathan, 216 Chestnut St, Phila, Pa.
Howe & French, 107 Milk St, Boston, Mass.
Jaeck Bros, J, 67 Wythe Ave, Brooklyn, N. Y.
Johnson, Chas. A, & Co, 14 Dey St, N. Y.
Karcher, Ph. H, & Co, 14 Cedar St, N. Y.
Keller, John J, & Co, 104 Murray St, N. Y.
King, L. C, & Co, 171 Front St, New York City.
Klipstein, A, & Co, 122 Pearl St, N. Y.
Matheson, W. J, & Co, 178 Front St, N. Y.
Mende, A. P. Co, 14 Water St, N. Y.
Merrimack Chemical Co, 13 Pearl St, Boston, Mass.
Nashoba Company, Ayer, Mass.
Naumkeag Dye Co, Salem, Mass.
Phillips, Moro Chemical Co, 131 S. 3d St, Phila., Pa.
Pickhardt, Wm, & Kuttroff, N. Y, & Boston.
Rice, Chas. F. & Co, 184 Summer St, Boston.
Schulze-Berge & Koechl, 79 Murray St, N. Y.
Schlbach, E, & Co, 77 William St, N. Y.
Sharpless, John M, & Co, 22 N. Front St, Phila, Pa.
Stamford Mfg. Co, 157 Maiden Lane, N. Y.
Welch, Holme & Clark Co, 383 West St, N. Y

Dyers and Finishers.

Boston Finishing Works, Williamstown Mass.
Bray, John P. Co, Pawtucket, R. I.
Greenwood, R, & Bault, Frankford, Pa.
Harras, E, 666 E. 152 St, N. Y.
Home Bleach & Dye Works, Pawtucket, R. I.
Keller & Cooper, 110 Putnam St, Phila, Pa.
Kensington Dye Works, Kensington, Pa.
Mason, The R. D, Co, Pawtucket, R. I.
Oakland Dye Works, 913 W. York St, Phila, Pa.
Pawtucket Dyeing & Bleaching Co, Pawtucket, R. I.
Perseverance Dyeing Co, Woonsocket, R. I.
Providence Dye Wks, Kensington, Pa.

Dye Sticks.

Haedrich, E. M, 311½ Walnut St, Phila, Pa.

Electric Lighting.

General Electric Co, Schenectady, N. Y. Offices in all large cities.

Electric Motors.

General Electric Co, Schenectady, N. Y. Offices in all large cities.

Electrical Apparatus.

General Electric Co, Schenectady, N. Y. Offices in all large cities.

Elevators.

Cohoes Foundry & Machine Co, Cohoes, N.Y.
Graves Elevator Co, Rochester, N. Y.
Salem Foundry & Machine Shop, Salem, Mass.

Engineers, Electrical.

General Electric Co, Schenectady, N. Y. Offices in all large cities.

Engineers, Mechanical.

Ferguson, John W, Paterson, N. J.
Jarvis Engineering Co, Oliver St, Boston, Mass.

Engravers for Fabric Printers.

Hope, John & Sons, Eng. & Mfg. Co, Elmwood, Providence, R. I.

Engraving on Wood.

Blanchard & Watts Eng. Co, 36 Columbus Ave, Boston.
Russell, Albert C, 38 Pearl St, Boston, Mass.
Ryder Co, J. J, 210 Westminster St, Providence, R. I.

Express Money Orders and Travelers' Cheques.

American Express Co, offices in every city

Factory Sites.

Chattanooga Chamber of Commerce, Chattanooga, Tenn.
Chattanooga Land Co, 62 Times Bldg, Chattanooga, Tenn.
Dolge, Alfred, Dolgeville, N. Y.
Bartholomew, J. B, Topeka, Kas.
Harmon, J. W, Oldtown, Me.
Pittsburg & LaGrange Co, LaGrange, Ga.
Spring Greek Mills, McKenzie, Tenn.

Feed Water Heaters.

Hine & Robertson Co, 67 Courtlandt St, N. Y.
Jarvis Engineering Co, Oliver St, Boston, Mass.
Whitlock Coil Pipe Co, 67 South St, Elmwood, Conn.

Feed Water Pumps.

Phœnix Iron Foundry, Providence, R. I.

Finishing Machinery.

See Dyeing, Drying, Bleaching and Finishing.

Fire Hose.

Rhoads, J. E, & Son, 239 Market St, Philadelphia, Pa.

Fire Pails.

Lincoln, Levi, Worcester, Mass.

Fluted Rolls.

Cohoes Foundry & Machine Co, Cohoes, N.Y,
Thurston, A. G, & Son, Box 528, Fall River. Mass.

Flier Pressers.

Thurston, A. G, & Son, Box 528 Fall River, Mass.

Fulling Mills.

Gessner, Ernst, 5136 Viola St, Phila, Pa.

Gear Cutting Machine.

Blaisdell, P, & Co, Worcester, Mass.
Whiton, The D. E, Co, New London, Conn.

Heating.

See Ventilating.

Hosiery Boards.

Pearson, J. T, Kensington, Pa.

Hydro Extractors.

Schofield, Geo. L, 123 N. Front St, Phila, Pa.

Index.

Burr Index Co, 336 Asylum St, Hartford, Conn.

Indicators for Engines.

Hine & Robertson Co, 67 Courtlandt St, N. Y.

Jute Goods, Burlaps and Jute Yarns.

Wilmington Mills Mfg. Co, Wilmington, Del.

Knit Goods Brushers.

Franz & Pope Knitting Machine Co, Bucyrus, O.
Jones, Lewis, Bristol, Pa.

Knit Goods Edgings, Trimmings, etc.

Cheney Bros, Silk Goods, 479 Broome St, N. Y.
Friedberger, S, Edgings, Germantown, Phila, Pa.
Hepner & Howitz, Lacings, 84 Leonard St, N. Y.

Knit Goods Finishing Machines, Crochet, Etc.

Champion Sewing Machine Co, 1819 N. 5th St, Phila, Pa.
Merrow Machine Co, Hartford, Conn.
Nye & Tredick, 606 Arch St, Phila, Pa.
Scott & Williams, 2077 E. Cumberland St, Phila, Pa.

Knit Goods Ravellers.

Traver, A. L. Mellenville, N. Y.

Knitting Machine Cylinders.

Ashman, Stephen A, 3 Fetter Lane, Phila, Pa.
Paxton & O'Neill, 129 Bread St, Phila, Pa.
Stafford, W, & Co, Little Falls, N. Y.
Stanton & Lewis, 318 Branch St, Phila, Pa.

Knitting Machinery.

Branson Machine Co, 506 St. John St, Phila, Pa.
Brinton, Denny & Co, 213 Race St, Phila, Pa.
Campbell & Clute, Cohoes, N. Y.
Champion Sewing Machine Co, 1819 N Fifth St, Phila, Pa.
Crane Mfg. Co, Lakeport, N. H.

Franz & Pope Knitting Machine Co, Bucyrus, O.
Hepworth & Co, Lehigh Ave. and Maschre St, Phila, Pa.
Jones, Lewis, Bristol, Pa.
Keystone Knitting Machine Mfg. Co, 1716 No. Fifth St, Phila, Pa.
Lamb Mfg. Co, Chicopee Falls, Mass.
Leighton Machine Co, Manchester, N. H.
National Automatic Knitter Co, 728 Cherry St, Phila, Pa.
Novelty Knitting Machine Co, Lowell, Ms.
Nye & Tredick, 606 Arch St, Phila, Pa.
Paxton & O'Neill, 129 Bread St, Phila, Pa.
Payne, Geo. W, & Co, Pawtucket, R. I. (Winding and spooling.)
Pepper Mfg. Co, Lakeport, N. H.
Schlossman, Paul, S. W. Cor. 6th and Arch Sts, Phila.
Scott & Williams, 2077 E. Cumberland St, Phila, Pa.
Stafford, W, & Co, Little Falls, N. Y.
Taylor, James, 835 Arch St, Phila, Pa.

Knitting Needles.

Ames, David J, Philmont, N. Y.
Breedon, Wm, & Son, Amsterdam, N. Y.
Corey, Wm, Co, Manchester, N. H.
Ives, Loyal T, New Brunswick, N. J.
Lydall, H, & Foulds, Manchester, N. H.
Star Needle Co, New Britain, Conn.
Treat, Orion, Manchester Green, Conn.
Wardwell Needle Co, Lakeport, N. H.

Laboratory Outfits.

Bullock & Crenshaw, 528 Arch St, Phila, Pa.

Lace Leather.

Rhoads, J. E, & Son, 239 Market St, Phila, Pa.

Lingoes.

Miller Mfg. Co, 16 Indiana Ave, Phila, Pa

Looms.

Crompton Loom Works, Worcester, Mass.
Draper, Geo. & Sons, Hopedale, Mass.
Furbush, M. A, & Son Co, Phila, Pa.
Gilbert Loom Co, Worcester, Mass.
Insinger & Co, 15 E. Canal St, Phila, Pa.
Kilburn, Lincoln & Co, Fall River, Mass.
Mason Machine Works, Taunton, Mass.
Whitin Machine Works, Whitinsville, Ms

Loom Picker Manufacturers

Barlow, John W, Spicket Mill, Lawrence Mass.

Lubricators

Dixon, Jos, Crucible Co, Jersey City, N. J.
Faul, W. J, 120 Liberty St, N. Y.

Lumpers.

Gerry, George, & Son, Athol, Mass.

Machinery Dealers.

Clark, Jeremiah, Lowell, Mass.
Schofield, Geo. L, 123 N. Front St, Phila, Pa.

Machinery Wipers.

Am. Silk Mfg. Co, 311 Walnut St, Phila, Pa.

Machinists' Tools.

Blaisdell, P, & Co, Worcester, Mass.
Whiton, The D. E. Co, New London, Conn.

Measuring and Folding Machines.

Elliott & Hall, 514 Harmon St, Worcester, Mass.

Mails.

Walder, J, Paterson, N. J.

Mill Builders and Engineers.

Ferguson, John W, Paterson, N. J.
Gray, Arthur F, Exchange Bldg, Boston.

Mill Supplies.

American Supply Co, Providence, R. I.
Buckley's, Benj. Son, Gun Mill, Paterson, N. J.
Covel & Osborn, Fall River, Mass.
Hill, Jas, Mfg. Co. Providence, R. I.
Miller Mfg. Co, 16 Indiana Ave, Phila, Pa.
Thurston, A. G, & Son, Fall River, Mass.

Napping Machines.

American Napping Machine Co, Williamstown, Mass.
Parks & Woolson Machine Co, Springfield, Vt.

Oilers.

Williams, H. A, Mfg. Co, 336 Congress St, Boston.

Oilless Bearings.

N. American Metalline Co, 62 W. Ave. and 3rd St, Long Island City, N. Y.

Pantagraphs, Engraving Machinery, Etc.

Hope, John, & Sons Eng. & Mfg. Co, Elmwood, Pronidence, R. I.

Paper Tubes for Cone Winders.

McCausland, J, 33 Canal St, Providence, R.I.

Patent Solicitors.

Crosby & Gregory, 34 School St, Boston, Mass.
Crossley, Arthur W, Exchange Bldg, Boston, Mass.
Gooch, Chas. J, Washington, D.C.
Miller, Jos. A, & Co, Butler Exchange, Providence, R. I.
Planta, E, 27 School St, Boston, Mass.
Wright, Brown & Quinby, Exchange, Bldg, Boston, Mass.

Pattern Cutter.

Gleason, A. H, Rockbottom, Mass.

Penstocks.

Dairymple, Geo, Fair Haven, Vt.

Pianos and Organs.

Beethoven Piano-Organ Co, Washington, N. J.

Pneumatic Conveying.

See Ventilating.

Power Transmitting Machinery.

Cresson, Geo. V, Co, 1800 Allegheny Ave, Phila, Pa.
General Electric Co, Schenectady, N. Y. Offices in all large cities.
Jarvis Engineering Co, Oliver St, Boston, Mass.
Kilburn, Lincoln & Co, Fall River, Mass.
Watson, A, 2136 Dickerson St, Phila, Pa.

Presses.

Crawford, J. J, & Son, Nashua, N. H.
Taylor, James, 835 Arch St, Phila, Pa.

Pressure Regulators for Steam and Water.

D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass.
Locke Regulator Co, Salem Mass.

Printed Labels.

Lynch, Robt. E, Diamond and Howard Sts, Phila.

Ramie Fibre.

Ramie Fibre Co, 120 N. 7th St, Phila, Pa.

Reed and Harness Manufacturers.

American Supply Co, Providence, R. I.
Huston, Wm, 46 Clifford St, Providence, R. I.
Loom Picker Co, Biddeford, Me.
Walder, J, Paterson, N. J.

Ribbons.

Cheney Bros, S. Manchester, Ct.
Friedberger, S, Germantown, Pa.

Roll Coverers.

Barlow, John W (worsted rolls), Lawrence, Mass.

Roller Skins.

Fell, Geo, & Son, Bolton, England.

Roofing Tin.

Merchant & Co, Philadelphia.

Roving Cans and Sheet Metal Work for Mills.

Hill, Jas, Mfg. Co, Providence, R. I.
N. E. Ventilating & Heating Co, 930 Manton Ave, Providence, R. I.

Rubbing Motion for Wool Cards.

Beswick & Kay, 25th and Callowhill Sts, Philadelphia.

Scales.

How, F. B, 216 Purchase St, Boston, Mass.
Trœmner, Henry, 710 Market St, Phila, Pa.

Separators.
D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass. (steam and grease).

Sewing Machines and Supplies.
Champion Sewing Machine Co, 1819 N. 5th St, Phila, Pa.
Frame, Gibbons, 2nd and Diamond Sts, Phila, Pa.
Nye & Tredick, 606 Arch St, Phila, Pa.
Scott & Williams, 2077 E. Cumberland St, Phila, Pa.

Sewing Machine Repairs.
Busch & Linn, 120 N. 7th St, Phila, Pa.

Shearing Machinery.
See Dyeing, Drying, Bleaching and Finishing.

Shell Rolls.
Cohoes Foundry & Mach. Co, Cohoes, N. Y.
Thurston, A. G, & Son, Box 528, Fall River, Mass.

Singe Plates.
New Bedford Copper Co, New Bedford, Ms.

Soaps.
Allison Bros, Middletown, Ct.
American Soap & Washolene Co, Cohoes, N. Y.
Camden & Phila. Soap Co, Camden, N. J.
Draper, J. O, & Co, Pawtucket, R. I.

Spindles.
Buckley, Benj's, Sons, Gun Mill, Paterson, N. J.
Draper, Geo, & Sons, Hopedale, Mass.
Providence Machine Co, Providence, R. I.
Whitin Machine Wks, Whitinsville, Mass.

Spinning Cylinders.
Hill, Jas, Mfg. Co, Providence, R. I.
N. E. Ventilating & Heating Co, 930 Manton Ave, Providence, R. I.

Spinning Frames.
See Cotton Machinery.

Spinning Rings.
Draper, Geo, & Sons, Hopedale, Mass.
Whitinsville Spinning Ring Co, Whitinsville, Mass.

Spinning Tubes.
Buckley, Benj's. Son, Gun Mill, Paterson, N. J.
Providence Machine Co, Providence, R. I.

Spooling Machinery.
Payne, Geo. W, & Co, Pawtucket, R. I.

Steam Boilers.
Frick Company, Waynesboro, Pa.
Jarvis Engineering Co, Oliver St, Boston, Mass.
Sargent, J. Bradford, 8 Oliver St, Boston.
Whitehill-Corliss & Pictet Ice Machine Co, Newburgh, N. Y.

Steam Boiler and Pipe Covering.
Keasbey & Mattison Co, Ambler, Pa.
N. Y. Fire Proof Covering Co, 128 Liberty St, N. Y.
Watson, H. F, & Co, Erie, Pa.

Steam Boiler Insurance.
Hartford Steam Boiler Inspection & Insurance Co, Hartford, Conn.

Steam Damper Regulators.
D'Este & Seely Co, 29 Haverill St, Boston Mass.
Locke Regulator Co, Salem, Mass.

Steam Engines.
Frick Co, Waynesboro, Pa.
Jarvis Engineering Co, Oliver St, Boston, Mass.
Sargent, J. Bradford, 8 Oliver St, Boston, Mass.
Whitehill-Corliss & Pictet Ice Machine Co, Newburgh, N. Y.

Steam Kettles.
Walker & Pratt Mfg. Co, 31-35 Union St Boston, Mass.

Steam Specialties.
Hine & Robertson Co, 67 Courtlandt St, N. Y.
Jarvis Engineering Co, Oliver St, Boston, Mass.

Steam Traps.
D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass. (return float and expansion).
Locke Regulator Co, Salem, Mass.

Steel Castings.
Chester Steel Castings Co, 407 Liberty St, Phila, Pa.

Steel and Iron Roofing.
Chattanooga Steel Roofing Co, Chattanooga, Tenn.

Stop and Speed Limit Attachments for Engines.
Monarch Engine Stop Co, 34 Maiden Lane, N. Y.

Tanks, Tubs and Vats.
American Stave & Cooperage Co, New York and Boston.
Brabender, Chas, & Son, Paterson, N. J.
Burkhardt's, Geo. J., Sons, 2831 N. Broad St, Phila, Pa.
Burkhardt, Wm. H, & Co, 240 Chestnut St, Phila, Pa.
Corcoran, A. J, 11 John St, N. Y.
Hall, Amos H, No. 2nd above Cambria, Phila, Pa.
Oat, Jos, & Sons, 232 Quarry St, Phila, Pa.

Tank Bolt Protector.
Burkhardt, Wm. H, & Co, 240 Chestnut St, Phila, Pa.

Tapes and Braids.
Fleming & Chapin, 215 Church St, Phila, Pa.
Kenyon, John J, Pawtucket, R. I.
Perseverance Mills, 2632-40 Mascher St, Phila, Pa.

Teasels.
Kellogg, Thos. C, Skaneateles, N. Y.
Kellogg, Wm, W, Skaneateles, N. Y.
McLaughlin Bros, Skaneateles Falls, N. Y.

Temperature Regulators.
D'Este & Seeley Co, 29 Haverhill St, Boston.

Tentering Machines.
See Dyeing, Bleaching Machinery, Etc.

Tension Pulleys.
N. E. Ventilating & Heating Co, 930 Manton Ave, Providence, R. I.

Testing Machines for Yarn and Cloth.
How, F. B, 216 Purchase St, Boston, Mass.

Textile Machinery Dealers.
Clark, Jeremiah, Lowell, Mass.
Schofield, George, Phila, Pa.

Valves.
D'Este & Seeley Co, 29 Haverill St, Boston, Mass.
Locke Regulator Co, Salem, Mass.

Ventilating Apparatus.
Berry, A. Hun, 23 W. 1st St, Boston, Mass.
Boston Blower Co, Boston, Mass.
New England Heating & Ventilating Co, Providence, R. I.
Philadelphia Textile Machinery Co, Hancock St, above Lehigh Ave, Phila, Pa.
Sargent's, C. G, Sons, Graniteville, Mass.
Sturtevant, B. F. Co, 34 Oliver St, Boston, Mass.

Warp Compressing Machine.
Worcester Warp Compressing Machine Co, Worcester, Mass.

Watchman's Clock.
Imhauser, E, 206 Broadway, N. Y.
Pneumatic Watchman Check Co, Columbus, O.

Water Wheels.
Burnham Bros, York, Pa.
Christiana Machine Co, Christiana, Pa.
Leffel, Jas, & Co, Springfield, O.
Swain Turbine Mfg. Co, Lowell, Mass.

Water Wheel Governors.
Cohoes Foundry & Machine Co, Cohoes N. Y.

Winders. (Hosiery.)
Payne, Geo. W. & Co, Pawtucket, R. I.

Wool.

Webb, Chas. J. & Co, 156 N. Front St. Phila, Pa.

Wool Combs.

Tonwsend, Thos, Manchester, Conn.

Wool Combing Machinery.

Crompton Loom Works, Worcester, Mass.

Wool and Waste Dusters.

Gerry, Geo, & Son, Athol, Mass.
Stillman-Rich Machine Co, Westerly, R. I.

Wool Duster.

Sargent's, C. G, Sons, Graniteville, Mass.

Woolen Machinery.

Altemus, W. W, & Co, 2816 N. 4th St, Phila, Pa.
Davis & Furber Machine Co, N. Andover Depot, Mass.
Furbush, M. A. & Son Machine Co, Phila, Pa.
Gessner, Ernst, 5136 Viola St, Phila, Pa.
Insinger & Co, 15 E. Canal St, Phila, Pa.
Parker, J. B, Machine Co, Clinton, Mass.
Sargent's, C. G, Sons, Graniteville, Mass.

Wool, Hair and Noils.

Fowles & Co, 102 Church St, Phila.
Webb, Chas. J, & Co, 156 N. Front St, Phila, Pa.

Wool Washers.

Sargent's, C. G, Sons, Graniteville, Mass.

Yarns.

Carpet Yarns.

Wilmington Mills Mfg. Co, Wilmington, Del.

Colored Cotton Yarns.

Hadley Co, Holyoke, Mass.
Montgomery, J. R. Co, Windsor Locks, Ct.
Sanford Spinning Co, Fall River, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Tucker & Cook Mfg. Co, Conway, Mass.

Cotton Warps and Yarns.

Abegg & Rusch, 92 Grand St, N. Y.
Arkwright, Sir Rich, & Co, Ltd, 69 Mercer St, New York City.
Bale, Stuart & Co, 51 Green St, N. Y.
Blythe, Richard A, 114 Chestnut St, Phila, Pa.
Buckingham & Paulson, 83 Leonard St, New York City.
Chadwick. Jas, & Bro, 241 Chestnut St, Phila, Pa.
City Mfg. Co, New Bedford, Mass.
Clark, Wm, Co, Westerly, R. I.
Fleming & Chapin, 215 Church St, Phila, Pa.
Fox, Henry C, 45 Strawberry St, Phila, Pa.
Germantown Spinning Co, Germantown, Pa.
Globe Yarn Mills, Fall River, Mass.
Grant Yarn Co, Fitchburg, Mass.
Greene & Daniels Mfg. Co, Pawtucket, R I.
Hadley Co, Holyoke, Mass.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
Hawes, O. S, & Bro, Fall River, Mass.
Howland Mills, New Bedford, Mass.
Kerr Thread Co, Fall River, Mass.
King, Alex, & Co, 54 Leonard St, New York City.
Lane, J. H, & Co. N. Y, Boston and Chicago
Littlefield Mfg. Co, Pawtucket, R. I.
Mitchell, Jas. E, & Co, Boston and Phila, Pa.
New Bedford Mfg. Co, New Bedford, Mass.
Orswell Mills, Fitchburg, Mass.
Sampson, O. H, & Co, 67 Chauncy St, Boston, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Tillinghast, Stiles & Co, 20 Market Sq, Providence, R. I.
Tucker & Cook Mfg. Co, Conway, Mass.
Wilkesbarre Lace Mfg. Co, Wilkesbarre, Pa.
Whitman & Hagan, Providence, R. I.
White, James F, & Co, N. Y. and Phila, Pa.
Whittier Cotton Mills, Lowell, Mass.

Glazed Yarns.

Arkwright, Sir Rich, & Co, Ltd, 69 Mercer St, New York City.
Blodgett & Orswell, Pawtucket, R. I.
Chadwick, Jas, & Co, Jersey City, N. J.
Kerr Thread Co, Fall River, Mass, and 29 Mercer St, N. Y.
Malcolm Mills Co, Frankford, Pa.
Warren, W, Thread Works, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.

Harness Twines.

Bale, Stuart & Co, 51 Greene St, New York
Chadwick, Jas, & Co, Jersey City, N. J.
Hadley Co, 95 Milk St, Boston, Mass.
Kerr Thread Co, Fall River, Mass, and 29 Mercer St, N. Y.
Moore, C, & Co, 12 S. 5th St, Phila, Pa.
Warren, W, Thread Works, Lowell, Mass.
Whittier Cotton Mills, Lowell, Mass.

Hosiery and Knitting Yarns.

Arkwright, Sir Rich, & Co, Ltd, 69 Mercer St, New York City.
Brown, Wilson H, & Bro, 240 Chestnut St, Phila, Pa.
Buckingham & Paulson, 83 Leonard St, New York City.
Chadwick, Jas, & Bro, 241 Chestnut St, Phila, Pa.
Clark, Wm, Co, Westerly, R. I.
Croll, Albert Ivins, Boston, Mass.
Germantown Spinning Co, Germantown, Pa.
Globe Yarn Mills, Fall River, Mass.
Goodwill & Ashworth, Jamestown, N. Y.
Greaves, J. W, & Co, Industrial Trust Bldg, Providence, R. I.
Greene & Daniels Mfg. Co, Pawtucket, R. I.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
Howland Mills, New Bedford, Mass.
Hyde, E. S, 223 Chestnut St, Phila, Pa.
Kerr Thread Co, Fall River, Mass.
Littlefield Mfg. Co, Pawtucket, R. I.
New Bedford Mfg. Co, New Bedford, Mass.
Orswell Mills, Fitchburg, Mass.
Rockwell, E. M, Leominster, Mass.
Sanford Spinning Co, Fall River, Mass.
Skenandoa Cotton Co, Utica, N. Y.
Tillinghast, Stiles & Co, 20 Market Sq, Providence, R. I.
Warren, W, Thread Works, Lowell, Mass.
Wessendonck, Lorenz & Co, 44 Leonard St, New York.
Whitman & Hagan, Providence, R. I.
Whittier Cotton Mills, Lowell, Mass.
Wilkesbarre Lace Mfg. Co, Wilkesbarre, Pa.

Jute Yarns.

Lane, J. H, & Co, N. Y, Boston and Chicago
Wilmington Mills Mfg. Co, Wilmington, Del

Novelty Yarns, Tinsels, Silk Noils, Etc.

Cranston Worsted Mills, Bristol, R. I.
Greaves, J. W, & Co, Industrial Trust Bldg, Providence, R. I.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
Malcolm Mills Co, 216 Chestnut St, Phila, Pa.
Montgomery, J R, Co, Windsor Locks, Ct.
Sanford Spinning Co, Fall River, Mass.

Silk Yarns.

Bale, Stuart & Co, 51 Green St, N. Y.
Cheney Bros, S. Manchester and Hartford Ct.
Griswold Worsted Co, 322 Chestnut St, Phila, Pa.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
Hawes, O. S, & Bro, Fall River, Mass.
Ryle, Wm, & Co, 54 Howard St, N. Y.
Sauquoit Silk Mfg. Co, 76 Chauncy St, Boston, Mass.
Wamsley, Philip, & Co, 34 Greene St, N. Y.
Whiteside, James, 96 Spring St, N. Y.

Woolen and Merino Yarns.

Brown, Wilson H, & Bro, 240 Chestnut St, Phila, Pa.
Fleming, Geo. M, 35 Strawberry St, Phila, Pa.
Fox, Henry C, 45 Strawberry St, Phila, Pa.
Greaves, J W, & Co, Industrial Trust Bldg, Providence, R. I.
Guerin Spinning Co, 92 S. Main St, Woonsocket, R. I.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.

Hyde, E. S, 223 Chestnut St, Phila, Pa.
Johnston & Farie, 132 S. 3d St, Phila, Pa.
King, Alexander & Co, 54 Leonard St, N. Y.
Mitchell, Jas. E. & Co, Boston, Mass, and Phila, Pa.
Rockwell, Edward M, Leominster, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Wesendonck, Lorenz & Co, 44 Leonard St, New York.

Worsted Yarns.

Abegg & Rusch, 92 Grand St, N. Y.
Alleghany Worsted Mills, Phila, Pa.
Bale, Stuart & Co, 51 Green St, N. Y.
Cranston Worsted Mills, Bristol, R. I.
Croft, Howland, Sons & Co, Camden, N. J.
Fleming, Geo, M, 35 Strawberry St, Phila, Pa.
Fox, Henry C, 45 Strawberry St, Phila, Pa.
Goodwill, Ashworth, & Co, Jamestown, N. Y.
Greaves, J. W, & Co, Industrial Trust Bldg, Providence, R. I.
Griswold Worsted Co, 322 Chestnut St, Phila, Pa.
Hardt, Von Bernuth & Co, 477 Broome St, New York City.
King, Alexander & Co, 54 Leonard St, N. Y.
Providence Worsted Mills, Providence, R.I.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Washington Mills Company, Lawrence, Mass.
Wesendonck, Lorenz & Co, 44 Leonard St, New York.
Whiteside, James, 66 Spring St, N. Y.
Whitman & Hagan, Providence, R. I.

Yarns, Threads, Etc.

Banding.

Heywood, M, & Co, Fall River, Mass.
Moore, C. & Co, 12 S. 5th St, Phila, Pa.
Warren, W, Thread Works, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.

Alphabetical Index to Advertisements.

When — appears in place of page number, the advertisement does not appear in this issue.

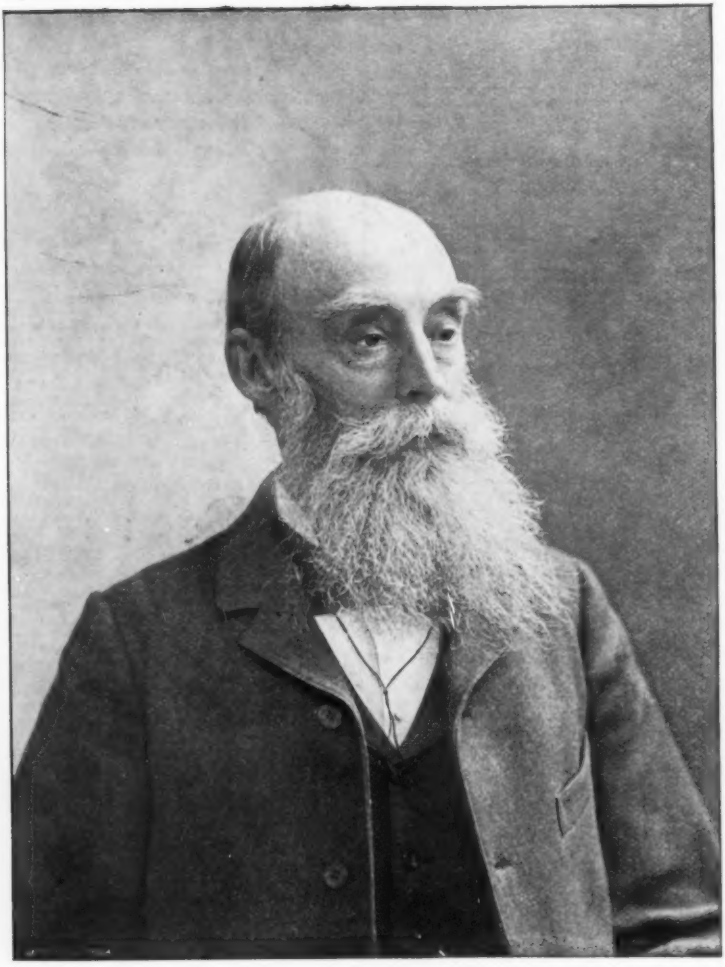
	page.
Abegg & Rusch.	101
Alexander Bros.,	117
Allegheny Worsted Mills,	108
Allison Bros.,	124
Altemus, W. W. & Son,	124
American Card Clothing Co,	6
American Express Co.,	121
American Napping Machine Co.,	48
Am. Silk Mfg. Co.,	129
American Soap & Washoline Co.,	48
American Stave & Cooperage Co.,	79
American Supply Co.,	131
Ames, D. J.,	91
Anchor Color Mfg. Co.,	76
Arkwright, Sir Richard, & Co, Ltd.,	105
Ashman, S. A.,	93
Atherton Machine Co.,	4
Atteaux, F. E., & Co,	76
Avery Lactart Co.,	Back Cover
Bale, Stuart & Co.,	103
Barry, Thayer & Co.,	109
Bartholomew, J. B.,	8
Beach & Co.,	76
Beethoven Piano Organ Co.,	124
Berry, A. Hun,	Back Cover
Beswick & Kay	6
Bischoff, C., & Co.,	77
Blaisdell, P., & Co.,	122
Blaisdell, The S. Jr., Co.,	104
Blythe, Richard A.,	105
Bodwell Water Power Co.,	8
Boston Blower Co.	82
Boston Finishing Works,	111
Brabender, Chas., & Son,	81
Branson Machine Co.,	88
Breedon, Wm., & Son,	91
Brinton, Denney & Co.,	90
Brophy, T.,	110
Brown, Wilson H. & Bro,	8 and 101
Buckingham & Paulson,	103
Buckley's Benj, Son,	124
Burkhardt's, Geo. J., Sons,	79
Burkhardt, W. H., & Co.,	79
Burnham Bros	114
Burr Patent Index Co.,	—
Busch & Linn,	89
Butterworth H. W. & Sons Co.,	1
Camden & Phila. Soap Co.,	72
Campbell & Clute.	86
Capelle, Herman,	104
Carpet & Upholstery Trade	—
Chadwick, Jas. & Bro.,	100
Champion Sewing Machine Co.,	89
Chattanooga Chamber of Commerce,	9
Chattanooga Company, Limited,	9
Chattanooga Steel Roofing Co.,	Back cover
Chautauqua Worsted Mills,	108
Cheney Bros.,	110
Chester Steel Casting Co,	—
Christiana Machine Co.,	114
Clark, Jeremiah,	8
Clark, The William. Co.,	102
Cohoes Foundry & Machine Co.,	—
Corcoran, A. J.,	81
Corey, Wm., Co.,	91
Cornell, F. H., Co.,	—
Correspondence School of Mechanics	119
Covel & Osburn,	122
Coyne, Geo. S.,	77
Crane Mfg. Co.,	85
Cranston Worsted Mills,	108
Crawford, J. J. & Son.,	93
Cresson, Geo. V., Co.,	4
Croft, Howland, Sons & Co.,	107
Croll, Albert Ivins,	109
Crompton Loom Works,	128
Crosby & Gregory,	35
Crossley, A. W.,	35
Dalrymple, Geo.,	—
Danforth Belting Co.,	117
Davis & Furber Machine Co.,	48
Designer,	131
D'Este & Seeley Co.,	118
Dill Spool Support Co.,	83
Dixon, Jos., Crucible Co.,	118
Dolge, Alfred,	124
Double, Geo. E., & Co.,	129
Draper, Geo., & Sons,	3
Easthampton Spinning Co.,	—
Elliot & Hall,	131
Farbenfabriken of Elberfield Company,	76
Faul, W. J.,	116
Faxon, J. W.,	9
Fell, Geo., & Son,	104
Ferguson, John W.,	Back cover
Firth & Foster Bros.,	111
Fitchburg R. R.	95
Fleming, Geo. M.,	101
Fleming & Chapin	105
Fowler & Co.,	109
Fox, Henry C.,	101
Frame, Gibbons,	90
Franz & Pope Knitting Machine Co.	84
Frick Co.,	116
Friedberger, S.	92
Furbush M. A. & Son Machine Co.,	48
General Electric Co.,	115
Genth, F. A.,	79
Germantown Spinning Co.,	104
Gerry, Geo. & Son,	128
Gessner, Ernst,	—
Gilbert Bros., & Co.,	78
Gilbert Loom Co.,	128
Gleason, Albert H.,	128
Globe Yarn Mills,	96
Gooch, C. J.,	35

page.

Gorham, Rogers & Co., ... 109
Granger Foundry & Machine Co., Front Cover.
Grant Yarn Co., ... 99
Graves Elevator Co., ... 130
Greaves, Jas. W, & Co., ... 103
Greene & Daniels Mfg. Co., ... 102
Greenwood, R., & Bault, ... 111
Griswold Worsted Co. Ltd., ... 110
Guerin Spinning Co., ... 103
Hadley Co., ... 100
Hall, Amos H., ... 81
Hand, Frederic, & Co., ... 131
Hanna, W. W., ... 76
Hardt, Von Bernuth & Co., ... 103
Harras, E., ... 78
Hartford Steam Boiler Inspection & Insurance Co., ... 119
Harway Dyewood & Extract Co., . . . 77
Hawes, O. S., & Bro., ... 99
Hepner & Horwitz, ... 89
Hepworth & Co., ... 89
Hill's, Edward, Son & Co., ... 77
Hill, Jas., Mfg. Co., ... 129
Hine & Robertson Co., ... 118
Holliday, Read & Sons, ... 75
Home Bleach & Dye works, ... 111
Hope, John, & Sons, Eng & Mfg. Co., . 80
Horsfall, Jonathan. 77
How, F. B., ... 129
Howard & Bullough Am. Machine Co., . 5
Howland Mills Corporation, ... 98
Hudson, Henry, ... 8
Huston, Wm, ... —
Hyde, Edward S., ... 135
Imhauser, E., ... 130
Imperial Chemical Co., ... 118
Insinger & Co., ... 49
Ives, Loyal T. 91
Jaeck, J., Bros., ... 77
Jarvis Eng. Co., ... —
Johnson, Chas. A., & Co., ... 78
Jones, Lewis 85
Karcher, Ph. H., & Co., ... 77
Keasbey & Mattison Co., ... 112
Keller, John J., & Co., ... 76
Keller & Cooper 109
Kellogg, Thos. C. 48
Kellogg, Wm W. 48
Kenyon, John J., ... —
Kerr Thread Co., ... 101
Keystone Knitting Machine Mfg. Co., . 85
Kilburn, Lincoln & Co., . Back Cover
King, Alex'r & Co., ... 99
King, L. C., & Co., ... 78
Klipstein, A, & Co., . . Back Cover
Krout & Fite Mfg. Co., ... 129
Lamb Mfg. Co., ... —
Lane, J. H., & Co., ... 99
Leighton Machine Co. 90
Lincoln & Co., ... 80
Lincoln, Levi 130
Littlefield Manufacturing Co., . . . 102
Locke Regulator Co., ... 116
Lord, Geo. W., ... 116
Lydall, H., & Foulds, ... 91
Lynch, Robt. E., ... 94
Malcolm Mills Co., ... 107
Mason Machine Wks., ... 6
Mason, R. D. Co., ... —
Matheson, & Co., Wm. J., ... 75
McCalvey Elevator Works, ... 130
McCausland, J., ... 93
McLaughlin Bros., ... 48
Merchant & Co., ... 95
Merrimac Chemical Co., ... —
Merrow Machine Co., ... 86
Miller, Joseph A., & Co., ... 35
Miller Mfg. Co., ... 124
Mitchell Jas. E., & Co., ... 99
Montgomery, J. R., Co., ... 100
Moore, C., & Co., ... 109
Nashoba Co., ... —
National Automatic Knitter Co., . . . 87
National & Providence Worsted Mills, . 108
Naumkeag Dye Co., ... 78
N. Y. Fireproof Covering Co., ... 63
New Bedford Copper Co., ... 80
New Bedford Mfg. Co., ... 98
New England Ventilating & Heating Co., 81
New York Filter Co., . . Back Cover
North American Metaline Co., . . . 119
Novelty Knitting Machine Co., . . . 94

page.

Nye & Tredick, ... 84
Oakdale Dye Works, ... 109
Oat, Joseph, & Sons, ... 80
Orswell Mills, ... 102
Palmer, John S., ... 93
Parker, J. B., Machine Co., ... 6
Parks & Woolson Machine Co., . . . —
Pawtucket Dyeing & Bleaching Co., . 110
Paxton & O'Neill, ... 88
Payne, Geo. W., & Co., ... 94
Pearson, J. T., ... 94
Pepper Mfg. Co., ... 86
Perseverance Dyeing Co., ... 111
Pettee Machine Works, ... 4
Phenix Iron Foundry, ... 80
Philadelphia Textile Machinery Co., . 86
Pickhardt, Wm. & Kuttroff, ... 75
Pittsburg & Georgia Land Co., . . . 9
Planta, Edwin 35
Pneumatic Watchman's Check Co., . . 130
Providence Machine Co., ... 6
Radey, Cunningham & Co., ... 122
Ramie Fibre Co , ... 109
Rhoads, J. E., & Sons, ... 119
Rice, Chas. F., & Co., ... 76
River Spinning Co., ... 108
Rockwell, E. M., ... 101
Rotch Spinning Corporation, ... 98
Russell, Albert C., ... 129
Ryder, J. J., Co., ... 130
Ryle, William, & Co., ... 110
Salem Foundry Machine Shop, . . . 130
Sampson, O. H., & Co., ... 99
Sanford Spinning Co., ... 96
Sargent's, C. G., Sons, ... 7
Sargent, J. Bradford, ... 114
Sauquoit Silk Mfg. Co., ... 110
Sawyer, Manning & Co., ... 99
Schlo-smann, Paul, ... 56
Schofield, Geo. L., ... 8
Schulze-Berge & Koechl, ... 75
Scott & Williams 52
Sharpless, John M., & Co., ... 76
Sheldon, J. D. & Co., ... 120
Solis, Andrew J. Jr., & Co., ... 108
So. Land & Dev. Co., ... 8
Stadtler, C. L., ... 8
Stafford, W., & Co., ... 94
Stamford Mfg. Co., ... 75
Stanton & Lewis, ... 89
Star Needle Co., ... 91
Stillman-Rich Machine Co., ... 124
Sturtevant, B. F. Co., Inside Rear Cover
Swain Turbine & Mfg Co., ... —
Taylor, James, ... 88
Thurston, A. G. & Son, ... 131
Tillinghast, Stiles & Co., ... 99
Torrance Mfg. Co , ... 131
Townsend, Thomas, ... 122
Traver, A. L., ... —
Treat, Orion, ... 91
Troemner, Henry, ... 78
Tucker & Cook Mfg. Co., ... 103
Vermont Spool & Bobbin Co., ... 128
Walder, J., ... 131
Walker & Pratt Mfg. Co., ... 81
Walmsley, Philip, & Co., ... 110
Wardwell Needle Co., ... 91
Warren, W., Thread Works, ... 105
Washington Mills Co., ... 106
Watson, A., ... 119
Watson, H. F. Co., ... 114
Webb, Chas. J. & Co., ... 109
Welch, Holme & Clark Co., ... 77
Wesendock, Lorens & Co., ... 103
White, James F. & Co., ... 102
Whitehill Engine & Pictet Ice Machine Co., ... 116
Whiteside, Jas., ... 101
Whitin Machine Works, ... 2
Whitinsville Spinning Ring Co., Back Cover
Whitlock Coil Pipe Co., ... 117
Whitman & Hagan, ... 101
Whiton D. E. Machine Co., ... 122
Whittier Cotton Mills, ... 102
Wilkes Barre Lace Mfg. Co., ... 100
Winslow Bros., ... 9
Winterbottom, Hyde & Co., ... 107
Williams, H. A., Mfg. Co., ... —
Wilmington Mills Mfg. Co., ... 111
Worcester Warp Compressing Mach. Co., 132
Wright, Brown & Quimby, ... 36



James L Branson

TEXTILE WORLD.

Vol. VIII. FEBRUARY, 1895. No. 2.

JAMES LAWTON BRANSON.

With the rapid expansion of other textile interests in America during recent years, the knitting industry has zealously kept pace. Clever management has characterized its promotion, while invention has been so prolific that its competition has come to be peculiarly that of brains.

A conspicuous figure in this industry is James L. Branson, founder and active head of the Branson Machine Company, Philadelphia. His achievements in the invention and production of seamless hosiery machinery have given employment to thousands, furnished the country a staple commodity in footwear, and rewarded his own diligence with a handsome fortune.

Mr. Branson was born in Uniontown, Ohio, April 3, 1831, and passed his youth on the family farm. In early manhood he entered journalism and for some years edited a daily paper, giving much attention to politics. Later, however, he learned the carpenter's trade and followed it until the war began. Then he left the work bench to enlist in the 124th Indiana Volunteers, and followed Sherman through his campaign to Atlanta. An aggravated attack of dyspepsia compelled him later to accept a discharge from the army.

In 1863 Mr. Branson invented a handloom, and with his brother placed it on the market in Cincinnati. The firm then established was Branson & Brother, and was continued several years. His knitting machine, intended simply for family use, was first offered to the public in 1868. Its adaptability to general manufacturing purposes, however, became apparent, and it soon drifted into use throughout the West. In 1880 it was introduced into factories in Philadelphia, from which time dates its general adoption as a successful labor saving device. It is stated from a trustworthy source, that 27,000 Branson machines have been sold. The company now employs over one hundred hands, has a capital of $50,000 and a surplus of $67,000. It was incorporated under Pennsylvania law in 1891, and is one of the largest manufactories of its kind in this country. Mr. Branson is a practical man who loves rural life, and finds enough time to conduct a fine, extensive farm, in Bucks County, Pennsylvania, which is his summer home. Edwin R. Branson, secretary and treasurer of the Branson Machine Company, is a son of the founder.

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New England Textile Directory.

The October issue of the TEXTILE WORLD contained a complete directory of the textile establishments in the New England States, giving name of mill, location, railroad connections, distances, officers, agent, superintendent, capacity of mill, kind of goods made, water power or steam, whether dye house or not, selling agents, etc.

It is illustrated by specially prepared maps of each State, showing the location of each city or town where there is a textile establishment, and only such towns.

Directory of Wholesale Buyers of Textile Fabrics.

In the January issue is contained a list of the large buyers from first hands, viz: The manufacturing clothiers, suit and cloak manufacturers, cloth jobbers, large jobbing and retail houses in the principal trade centres of the United States. In most instances the individual buyers' names are given.

Copies of October and January issues may be had for 50 cents each at any of our offices, as long as the editions last.

The Middle States Textile Directory will be published in the April Number.

Dissolution of Partnership.

January 1, 1895.

Notice is hereby given that the partnership heretofore existing between the undersigned, under the name of Guild & Lord, is this day dissolved by mutual consent. The business will be carried on at the present location, 620 Atlantic Avenue, Boston, by Henry G. Lord and Bertram Lord, under the firm name of Guild & Lord, who will assume and pay all liabilities of the late firm.

WALTER B. GUILD,
HENRY G. LORD,
BERTRAM LORD.

From the above notice it will be seen that I have withdrawn from the firm of Guild & Lord, and that Messrs. Henry G. Lord and Bertram Lord will conduct the business as formerly.

My withdrawal from partnership in the firm is actuated by a desire to have an opportunity to devote a portion of my time to other work of a benevolent nature, in which I am deeply interested, but the prosecution of which would not be justifiable if taking any portion of the time which as a partner, was pledged to the interests of the firm, to which my partners are devoting their entire attention.

While, however, I am no longer a partner, I am still closely connected with the business, and have lost none of my personal interest in the TEXTILE WORLD, or the other publications of the firm, and my withdrawal is with the utmost mutual good feeling

My services are retained on a very liberal, mutually satisfactory, commission basis, which permits an equitable arrangement of compensation for services rendered.

The withdrawal of my financial interests in the firm has been affected in a perfectly satisfactory manner, and through other arrangements, without impairment of capital.

There is no change in firm name, policy, or editorial management in any way contemplated, and my time will be as formerly, devoted very largely to securing business, obtaining information, and the general advancement of the paper from the outside, while Mr. H. G. Lord, who from the start has been managing editor, will continue to devote his attention to the TEXTILE WORLD in such manner that no interruption of the progress, or diminution of the merits of the paper will result.

In this announcement there is no intention of saying good bye to my personal friends and patrons of the TEXTILE WORLD, as we shall probably meet again, not only in the interests of the TEXTILE WORLD, and the industry which it represents, but probably in my new work, in which many of the old friends will be interested.

In commending the old, yet new firm to those with whom my commendation will carry weight, it is a pleasure to state that Mr. Henry G. Lord and also Mr. Bertram Lord have been to me as own brothers. It has never been my privilege to work with any persons showing more energy and close application to business, and in this change the most honorable spirit has been manifested on the part of both the Messrs. Lord.

It is my intention to work actively and enthusiastically in the interests of the new firm, and I hope, as in the past, to receive a large amount of patronage, through persistent personal effort, for the publications of the new firm of Guild & Lord.

WALTER B. GUILD.

New Offices.

The TEXTILE WORLD is now well settled in the new suite of offices into which it moved in January. For the past two years, our former offices have not afforded adequate room to comfortably provide for our requirements, and yet we did not like to move from our established location. At the first of the year an opportunity presented itself, and we were enabled to secure a large, well lighted suite of offices on the same floor, on the corner, with front on Atlantic Ave., and side on Summer St., overlooking the New York & New England Railroad station. Here we have nearly 2000 square feet of floor space, which is three times what we had before, and is more adequate to our needs.

The location is in the centre of the wool district, the dyestuff dealers are close at hand, the Post-office and financial centre, the dry goods district and cotton brokers' offices are within five minutes walk, so that those interested in the textile industries, will find it convenient to look in upon us and may be assured of a hearty welcome.

—The headquarters of the New England Cotton Manufacturers' Association is in the John Hancock building, room 501. A stenographer is in attendance constantly for the convenience of members.

—Were the laws in all the states uniform as to labor and conditions under which goods are manufactured, labor would be far better protected, and greater progress could be made in the securing of more ideal conditions. The lack of this uniformity endangers Massachusetts' advantages and injures labor in the progressive states, by driving employers elsewhere, or withholding advances in progressive states, until competitors outside are inclined to follow. With national legislation on a conservative basis, shorter hours could be secured more rapidly than can be hoped for by the present plan, of each state attempting to enact and enforce its labor laws independently.

The Textile School.

At this time, when the question of the establishment of a textile school in Massachusetts, backed by a state appropriation of $100,000 is under discussion, we have deemed it interesting to our readers to present a sketch of the work now being done in this line by the Philadelphia Textile School, an institution which reflects the greatest credit upon that great textile manufacturing city. The interest of this article is enhanced by views of the different departments of the school, the building itself, and portrait of its able director. We believe many of our readers will be surprised at the magnitude of this enterprise, and the scope of the work accomplished. The views in the weaving departments, show rooms well equipped with modern machinery, while those of the carding and spinning and chemical laboratory, show equally complete equipment.

The present complete equipment and high standard of the Philadelphia Textile School, has not been obtained except by long and faithful effort on the part of those most interested. Money alone was not the only requisite. It was a gradual development. The mistakes of one year were avoided in the next; the weaknesses in equipment were remedied when opportunity presented. The courses were carefully planned to furnish the greatest amount of instruction in the time at their disposal, and little by little the work was gradually rounded out, and brought to its present excellence. The machinery builders and supply dealers have most loyally aided the success of the school, and the management appreciates thoroughly the assistance received from them and other generous manufacturers.

Inspired by the achievements of the Philadelphia School, it is but natural that New England, and especially Massachusetts, which leads the United States in the volume of her textile manufacturing industries, should seek to follow the noble example set by Pennsyl-

vania in the line of technical education. It is a wonder that something in this line has not been done before. To be sure, the textile department of the Lowell School of Design, has, in a very meagre degree, furnished instruction to a small number of pupils, but does not approach the idea of what a school of this sort should be.

Fully recognizing the value that such a school would be to our textile manufacturing industries, we feel however, that whatever plan is adopted should be wholly in harmony with the work in this line already achieved. Technical education in this country, and especially *textile* technical education, has been confined to such narrow limits thus far, that its truest advancement can only be served by thorough harmony of effort.

A textile school in Massachusetts, should be planned to conform to and prepare for the work now being done in Philadelphia. This branch of technical training is yet in its infancy, and there is ample room in the various manufacturing centres for primary and grammar schools in this line, which will afford students an opportunity to do the preliminary work in the schools near their homes, to be followed up by a year or more's training in the higher and more thorough courses, to be taken in the high school of this branch, viz., at the Philadelphia Textile School.

It seems to us that the interests of the manufacturing community, which knows no state or city pride, can be best served by making the proposed textile schools auxiliary to the splendid institution now so far advanced, rather than to attempt a plan which should be in any degree competitive with it.

Let Lowell have a school, let Fall River, New Bedford, Lawrence and other centres have schools, but let them be elementary schools which may be preparatory for more advanced work at Philadelphia, for those pupils who can spare the time and expense for further study. Let the system be similar to that which prevails in classical education. The preparatory schools all over the country are fitting their pupils for college and university; some students never go to college or university, but the preliminary schooling is of great value. So it should be with textile training. The elementary schools would be of the greatest benefit to the students, whether they ever took the higher courses or not.

—Wilbur F. Lunt, a member of the United States Board of General Appraisers, was in Boston last week and took a quantity of testimony from the wool trade, concerning broken tops, etc. The Arlington Mills, the Woonsocket Worsted Company and other concerns were represented, including the TEXTILE WORLD. The trend of the testimony went to prove that broken tops could be pieced together by a machine especially adapted for that work, which, however, is to be found only in England. This machine, it was asserted, would take tops about two feet long and splice them together, making a continuous top, the cost being estimtaed at half a cent a pound. It was stated that top waste, slubbing waste, etc., had not been known as an article of merchandise prior to September, 1894. The hearing was harmonious until a young and wicked man pointed out the fact that the Botany Worsted Company had been selling the article to the trade for more than two years. He also had the temerity to insist that this class of stock was sold—not to worsted spinners, but to the fine underwear trade, that fine Australian tops were selling for 41 cents against 45 cents for Australian domestic tops, and that it would be folly to break them up for the purpose of splicing tnem together, as no first-class spinner would use spliced tops which make bad yarn. This was not denied, the Arlington Mills stating that they used only 125 pounds a month. The hearing was interesting and both sides brought out some good points. A ruling as to the duty on tops may be expected at any time.

The Southern Movement.

The daily and trade press have in the past few months been teeming with reports of projected removals of some of New England's stanchest manufacturing concerns to the South. There has been so much agitation on the subject that a committee of the Massachusetts legislature has been appointed to investigate the reasons for it.

Like most industrial developments of this character, the extent of the movement has been exaggerated. When the matter is simmered down, it is found that there are four or five large concerns which are giving this matter serious consideration. One of them has selected its site, and the mill is under way. A number of those who were reported as about to move to the South, have denied the rumor.

There can, however, be no question but what Northern manufacturers are giving this subject graver thought than ever before, and that they are in a much more appreciative mood toward the advantages offered by the South than they were in the boom times of 1890 and 1891. Then it was principally the bounty seekers who would lend a ready ear to the Southern advocate.

Contrary to the first impressions of those who approach this subject, the question in saving of cost of cotton is one of the least important elements, although of course that point is to be duly considered. It is the question of legislation, power, heating and lighting that have most weight with conservative manufacturers. They feel (and justly too) that they are being so hampered with restrictions by the legislature, that the further investment of capital under such conditions is unwise, and that in order to compete with growing Southern competition, they must manufacture under the same liberal conditions that prevail in the South.

The advantages which the Southern states offer in the way of cheap fuel, longer daylight hours, which means shorter hours for artificial light, milder weather, which means less expense for heating, are indisputable.

On the question of legislation, there is an important point to be considered. The Southern states are, as yet, distinctively agricultural communities, but with rapid increase of manufacturing interests and the startling development of the Populist movement, it is by no means assured that the laws affecting labor will offer continued security to manufacturing interests.

The Cotton Market.

Considering that the cotton crop of 1894-95 promises to be perhaps the largest in the world's history, the undertone of the market is encouraging. This is due in a measure to discounting the early rush and uncommonly favorable weather conditions which served as an accelerator, aside from the craze to sell, caused by the quick decline in prices. Certainly advances on the crop are much smaller than usual; consequently, that is an element which can be virtually eliminated in a diagnosis of the situation. One scarcely needs to remark that there are fewer crop estimates than last year. Estimating from the amount in sight December 15, as compared with the same dates in 1893 and 1891, without allowing for the difference in the amount of old cotton on hand, should the movement continue at the rate of the season of 1891-92, the crop will run over rather than under 9,250,000 bales. Estimating that the amount in sight December 31, is 2½ per cent below the average of the last dozen seasons (as was true on the crop of 91-92), the crop would reach the staggering total of 9,582,000 bales. But there is reason to believe that 9,250,000 bales is an outside estimate. It is worth while noting that the average estimate of the 131 members of the New York Cotton Exchange is within 162 bales of this total. The fact that advances on the crop are so much

smaller than the average, lends great uncertainty to the situation. While there are over 1,000,000 bales more in sight than a year ago, it should be remembered that the excess of receipts has been so largely absorbed by American spinners and increase in exports, that the visible supply is not quite 100,000 bales greater than a year ago. Alfred B. Shepperson thinks that 479 pounds net to the bale is a fair estimate which is derived from the government figures of a yield of 1917 pounds on each of 19,728,491 acres. As regards the element of foreign demand, everything points to considerable increase. This, because the Egyptian crop is somewhat off in quality and of only average volume, which is also true of Indian cotton. The lower the price of American cotton, the larger will naturally be its taking by European spinners, in preference to the Indian crop. The small profits of British manufacturers last season may cause some hesitancy, which in the end is sure to be made up for. There is strong reason to believe that spinners will follow any advance, being in position to do so.

The increase in exports of Egyptian cotton from Alexandria, more than keeps pace with the increased receipts, and the market remains firm at rather higher prices. There seems to be little chance of lower prices, unless it is on the early shipments of the next crop.

In Peruvian cotton, the demand has been better of late; still, there has been some shading in prices which have marked the lowest quotations on record. The threatened export tax doubtless brought this about. Prices are likely to harden as the smallness of the new crop is confirmed by the early movement.

Prices of American cotton have been firmer the last few days, owing to greater courage manifested by holders, and decreasing receipts in the interior and at the seaboard.

The Wool Market.

While there is every prospect for a large domestic consumption of wool this year, there is little outlook for more than temporary advances. The minute that American wools rise, they reach a level at which foreign substitutes come into successful competition. If any substantial advance should come, a lot of American wool bought during the dull spell last summer, would be thrown on the market. This wool is bound to come out anyway, and it is safe to say that many of its holders are already very tired. Any sharp decline followed with increasingly unfavorable indications, would cause some throwing lively enough to temporarily demoralize the market. Again the nearness of the new clip menaces any marked upward movement. On the other hand, mills are generally busy, and the number of spring orders yet in hand, and fall orders coming in, will necessitate a steady, if not liberal demand. The outlook is for a fairly steady market, much like that of early February, for if higher figures are not to be expected, there are no really alarming elements in the financial situation. February sees a slightly better tone in the market, without any increase in business, although the volume of trade the last six weeks, reaches a very respectable total. Manufacturers are consuming a good deal of wool, which is being eaten up as they go along, for no one is banking on the future. The closeness of profits is a discouraging factor. Clothiers, it would seem from a consensus of opinion among the trade, have not ordered more than half of their usual fall invoices as yet. Considering the severe weather of late, the volume of trade has held up surprisingly well.

Late English advices say: "The market tone continues quiet. In English wools, business is confined to small buyers by users who are obliged to operate to keep themselves going. Prices show almost no change. Export

merchants have not much to offer in the way of new business. Manufacturers with American contracts are being pressed for deliveries."

Carpet wools have been stagnant. Fractional differences have kept the manufacturer and importer apart. Meantime, stocks are reaching so low an ebb that manufacturers will be forced to capitulate.

The seeming discrepancies on different grades in the Boston market are not hard to account for. Those that have showed the greatest decline, have been held above the market; those that have advanced unduly, owe it to passing demands for those particular grades.

A steady movement is yet to be noted in Australian wools, the recent London sales of which were mostly for manufacturers' accounts. Prices ruled too high to attract dealers for trading purposes.

The American Market, from an English Standpoint.

HUDDERSFIELD, ENG., Feb. 1895.

Editor of Textile World:

The present heavy weight season has been one of great disappointment to the manufacturers in this section, a number of whom entered the American market for the first time. The prevailing impression, before any samples were shown, was that they would have everything their own way, on account of the reduction of the duties, and consequently they were greatly surprised when aware of the fact that American manufacturers were perfectly able to compete with them. And this has been made fully apparent to their minds, by the small amount of orders generally obtained, but in some instances, a fair production has been marketed, and this has been the case in a line of cotton warp weaves, made to sell for 62½ cents, duty paid, the face having a high finish, and the back being soft and shaggy. This line of goods was sold principally to the cloaking trade.

Quite a quantity of medium and low grade kerseys have been ordered, but not anything like the number it was expected would be used; the greatest amount of business has been done on a line of friezes which have sold in New York, in blacks and blue, for 85 cents per yard. The following is the layout, which may interest some of your readers.

1300 ends in warp; reed No. 8×2=16 ends per inch; width of warp in reed, 81 1-4 inches; width of finished fabric 54 inches; warp 1 1-4 run, filling 7-8 run, composed of stock made as follows: 30 per cent. old cheviot mungo, 50 per cent. new cheviot mungo, and 20 per cent. white noils; 24 picks, weight from loom 31 ozs., finished weight, 31 1-2 ozs.

These goods are shrunk 14 per cent. in fulling, and then 6 ozs. of flocks are added.

WEAVE.

Alongside of this frieze, a cotton warp chinchilla has obtained large orders; it is a fine fabric, being well fulled up, and finished well, it brings 60 cents, duty paid. All wool fabrics of this class have also sold, but none of them anywhere near the quantity of the cotton warp fabric.

Some mills have made lines of cheviots which sell at 85 cents, and they have had a fair call, and are made mostly from cheviot mungo, which can be bought here very cheap (9 1-2 to 10 cents per lb.), and which is mixed with about 20 per cent. coarse cheviot wool. These goods are finished in the latest style of finish, a long nap being left, which gives the cloth quite a fine appearance.

Worsteds are not being sold as freely as was expected; the manufacturers of low grade worsteds, that is those made with a heavy backing, have done fairly well, for the fabric presents an attractive face, the worsted all being there and the backing thread being composed of the cheapest kind of mungo which can be bought for two cents per pound.

This very cheap back is only put in the lowest grades, a better stock being used for the finer grades, in some of which 15 per cent. cotton is used. The fabrics weighing 24 ounces, sell in double width goods, from 70 cents to $1.00, duty paid. HUDDERSFIELD.

THE PHILADELPHIA TEXTILE SCHOOL.

The Philadelphia Textile School is indirectly an outgrowth of the Centennial Exposition. It is a branch of the Pennsylvania Museum and School of Industrial Art, which owes its origin to the increased interest in art and art education, awakened by the exhibition of 1876.

The parent institution was incorporated in February of that year, with a special view to the development of art industry and its technical applications, by providing instruction through practical schools, special libraries and lectures.

It will be seen that the purpose of the institution is distinctly industrial.

The School of Textile Design and Manufacture, better known as the Philadelphia Textile School, was opened in 1883, owing to the need of familiarizing students with the processes and industrial applications of design, in order to give proper direction to such purely artistic training as the institution had to offer. Three years later followed the School of Chemistry and Dyeing.

In 1893, through the munificent gift of $100,000, by William Weightmann, and the generous subscription of a similar amount, by residents of Philadelphia, the institution acquired the magnificent property at the corner of Broad and Pine Streets, which is the finest location, occupied for such purposes, in America. The building contains accomodations for 1000 pupils, studios, chemical and mechanical laboratories, lecture and administration rooms, and an ample library.

THE PHILADELPHIA TEXTILE SCHOOL BUILDINGS ON BROAD AND PINE STS.

Applicants for admission are expected to be as proficient in English branches as the average grammar school graduate. The discipline is simple, being left, as far as possible, in the hands of the students.

The textile branch is splendidly provided for in its new quarters, which afford a floor space of over 30,000 square feet, admirably heated and lighted.

Through the generosity of manufacturers, the school has managed to keep pace with its surroundings.

The accompanying illustrations have

been specially prepared by the TEXTILE WORLD from recent photographs, and afford an interesting object lesson of the magnitude of the institution, and the excellence and practical nature of its equipment. Our views show the section of the buildings occupied by the Textile School, the carding and spinning room, the hand loom and the power loom weaving departments and a view in the chemical laboratory.

Instruction at first was given in the evening only. The interest shown by the students, however, soon demanded the establishment of a day course, which was accomplished in 1884. Since that date, the branch has developed with wonderful rapidity. Starting with four hand looms, the equipment has increased until there are now 47 machines operated by power, 70 by hand, and four engines. Obstacles too numerous to mention have been overcome by T. C. Search and his colleagues, all of whom are thorough business men. The course of instruction has been gradually perfected, until to-day it compares most favorably with the best foreign schools. E. W. France, the present director, whose likeness we have the pleasure of presenting to our readers, is largely responsible for the degree of excellence which the institution has attained. His methods are progressive, and he has the happy faculty of interesting his pupils in this work. At the recent exhibition of the work of the school, which attracted so much attention in Boston, we met several of the students, and were particularly impressed with the enthusiasm they felt for the school and its work. Recruited, as they are, from the families of our manufacturers, with the intent of becoming manufacturers themselves, the future prospects of the school are indeed bright, with such a loyal band of graduates. Those familiar with educational work of any kind, know that enthusiasm and interest such as their's, can be aroused and maintained only by a man of peculiar ability and born genius as an instructor, and Mr. France's great success in this field, has demonstrated his possession of such qualifications.

Designing, weaving, chemistry and color, comprise the work of the student the first year. Under the head of designing, the foundation and derivitive weaves are taught with the many details connected, such as texture, stock, etc.; analysis of fabrics, and the most economical methods of production come in for due attention. Free hand drawing, and the first principles of the

E. W. FRANCE, DIRECTOR.

Jacquard machine, fit the student for the more intricate work of the next two years.

All the weaving the first year, is done on hand looms, with a capacity of 30 harness. The theory of the lecture room is practically demonstrated on these looms, and the result of this work followed throughout the course. The movements and interlacings of threads can be watched as each pick is thrown across the warp. Students, having woven on power looms before coming to the school, do not at first see the advisability of such a plan, but a short time suffices to prove its wisdom.

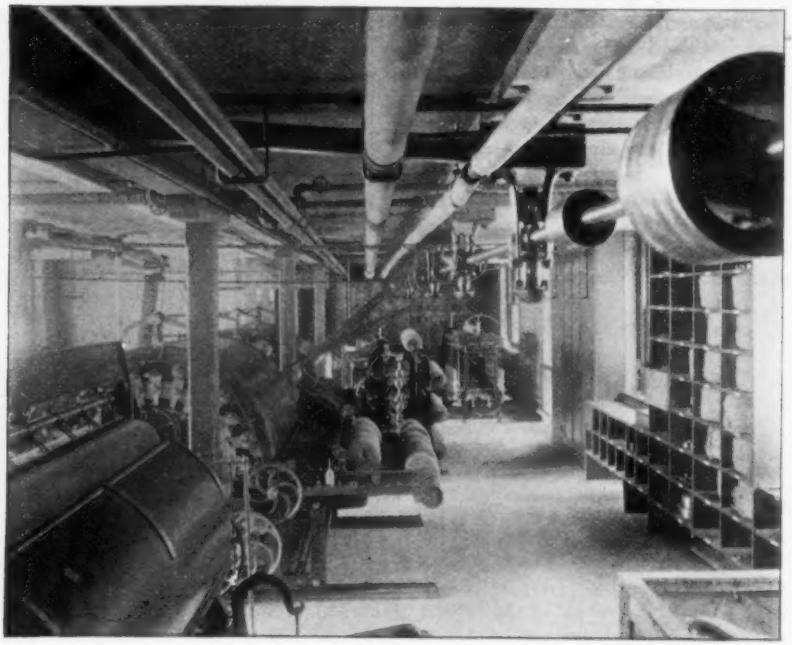
Chemistry is given the attention it deserves as a factor in textiles. The work in the laboratory is preparatory to the dyeing of stock later in the course.

The chemical department occupies two spacious rooms on the first floor, one of which is used for a lecture room, and for weighing of chemicals and dyestuffs. The other is fitted up with desks for the accomodation of a class of fifty, each desk being supplied with gas and water, and all of the apparatus necessary to perform experiments, sample scouring and dyeing. The school is constantly supplied, through the kindness of the dyestuff dealers and manufacturers, with samples of all the new products, which the student has the benefit of testing. An excellent idea of the laboratory can be gained by the appended picture, in which the students are seen at work.

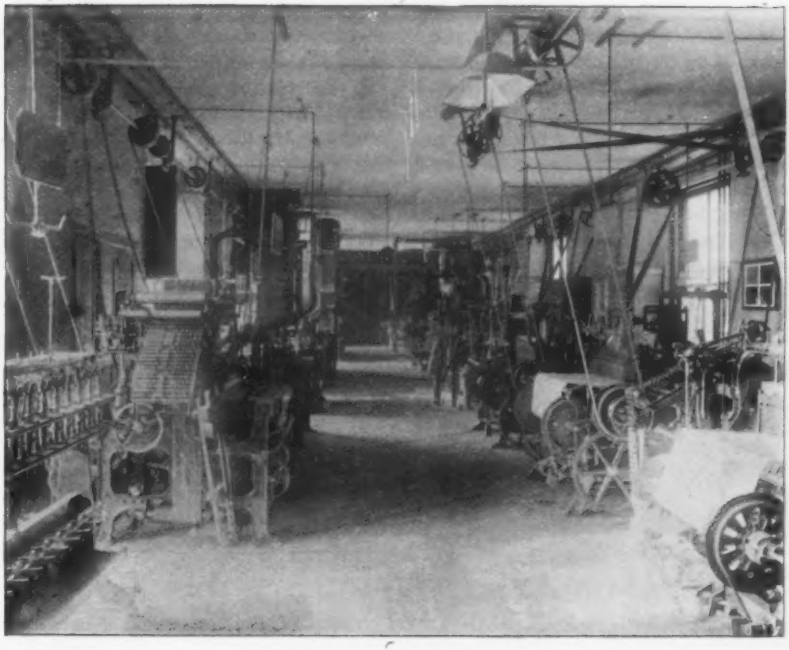
A large room in the basement, admirably adapted for use as a dye house, has a cement floor, good water supply and drainage. All the machinery and appliances necessary for practical dyeing have been added, and the student receives the practical as well as the experimental part of dyeing. The dye house is equipped with copper-lined tanks of regulation depth, which are heated by steam; scouring tanks and bleaching tank, large copper tank for making scouring solutions, hydro-extractor, and a large drying room with coils of steam pipes for heating, thus giving scope for possibilities for which provision has never before been made.

The attractiveness of a piece of goods is generally due to its colors and their arrangement. No works are published which will educate the eye. In this school, however, by a course that cannot be explained, the eye is trained to tell at a glance whether or not the harmony or contrast is what it should be.

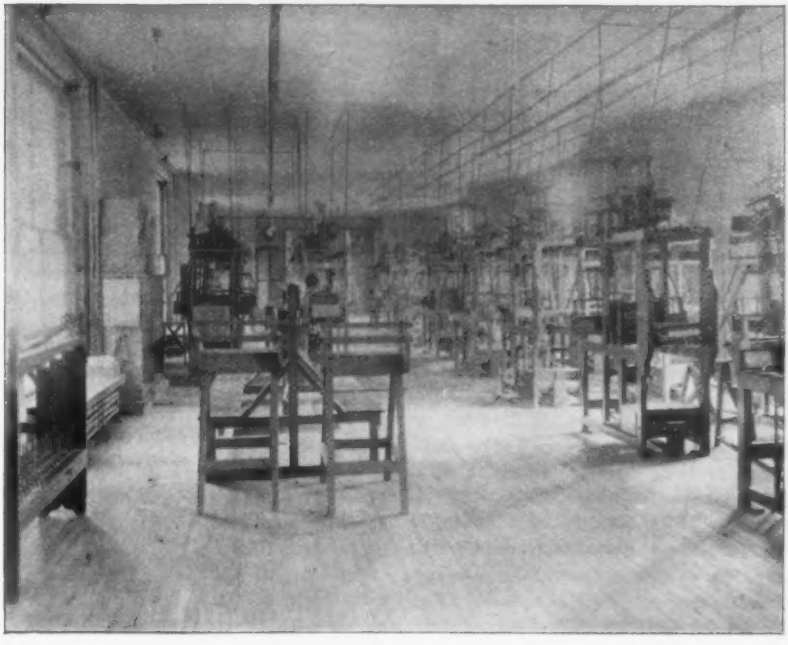
The course of the second and third years serve to increase the desire for investigation. During the second year, the student has the use of twenty power looms, from the best makers. The reader will best be able to judge of the extent and completeness of these departments by the illustrations shown in connection with this article.



CARDING AND SPINNING ROOM.



POWER LOOM WEAVING ROOM.



HAND LOOM WEAVING ROOM.

In originating the details of a fabric the student is the manufacturer in every sense of the word; also in superintending every process to the finished cloth—dyeing, dressing, beaming, drawing-in, reeding and weaving. This training establishes confidence that never could be gained by watching others.

The third year is chiefly elective and if the student knows what class of fabric he is likely to devote himself to, he is afforded every opportunity to perfect himself in that line. Here is offered the chance of a lifetime to demonstrate his ability.

A feature recently added to the regular course of instruction, is Elementary Metal Working or Vise-Work, and, in connection, the principles of economic production and use of steam are taught.

Lectures are given on the different materials used in the textile industries, such as wool, cotton, silk, mohair, jute, flax, etc., their source, chemical and physical structure of the fibre, the action of chemicals on the different fibres and their affinity for various dyestuffs. Having studied the raw materials, the different processes by which they are converted into yarns, such as sorting, cleansing, carding and spinning of wools, systematically mixing, opening, carding, drawing and spinning of cotton, and finishing of the various fabrics, are taken up. Lectures are also given on the economic use of steam.

There is a special course in chemistry and dyeing, in which students spend all their time in the laboratory, and those not wishing to take up chemistry may confine themselves to dyeing. A department of cloth finishing has also recently been added.

CHEMICAL LABORATORY.

Lectures on Patent Law and instruction in French, German and Spanish, too, are now numbered among the advantages of the school.

"Bronze Medals" are offered in the first, second and third year classes, to be awarded to students attaining the highest rating in their final examina-

tions, taken in connection with the character of the regular work they have done throughout the term.

A student is considered qualified to enter the final examinations, who has completed the course of study as prescribed for the first thirty weeks of the term. The examination may consist of the task of producing any one of the following fabrics: Trousering, suitings, dress goods, upholstery, or any other class of fabrics to be selected by the director. In the first year the student, after completing his designs, is supplied with the necessary colored yarns, and performs his work on the hand-loom. The second and third-year students are furnished with the white yarn, which they must dye for themselves, making all the necessary calculations and performing their work on one of the power-looms, without the aid of the instructors.

W. P. WARREN.

It is difficult to give even an outline of the work done by the school, the influence of which will, ten years hence, be felt throughout the land.

In a letter received from a student, to whom we are indebted for much of the information contained in this article, he says: "Having had several years experience in one of the largest woolen mills in the country, and knowing what I most needed, I am satisfied that the three-year course of this school is of inestimable benefit. Had I remained in the mill I should never have had the knowledge of other fabrics I now possess."

The prospects of the school are bright. The machinery and supply dealers have always been most generous in their gifts, and show the liveliest interest in its welfare, responding generously to its requirements. It is splendidly equipped in its weaving department, but has been a little weak in carding and spinning. This deficiency will soon be remedied, as we understand that a generous Philadelphia builder is to donate a complete set of carding and spinning machinery, and other manufacturers are planning contributions.

A plan is now being formulated to establish and operate a two-set woolen mill in connection with the school. Students will be required to work a certain number of hours every week, thereby securing the principles of mill economy. "In my opinion," says our student friend, "a cotton plant will, within five years, be in similar operation."

As the manufacturers are directly benefited by textile education they should render every possible assistance to an institution of this kind.

W. P. Warren.

In the death of William P. Warren, Westfield has without doubt lost the leading manufacturer of the town. Although scarcely a decade has passed since he took the active management of the W. Warren Thread Works, he, within that period, virtually created three of

the largest industries of that place. The secret of Mr. Warren's success is found in a motto which hangs over his vacant desk in the new office of the Warren Co. "Do not be induced by a strong desire for present gain, to run the risk of eventually losing all." This motto was given by his grandfather to his father, William Warren, when he first ventured into business life. This rule of proceedure has been handed down in the family very much like a legacy, and the golden letters in which the dead manufacturer recently had it inscribed in a place perpetually before his eyes in business hours, remain to tell how much he valued it as a principle of life. Mr. Warren was taken ill with the grip six weeks ago, and gradually the disease developed into menengitus combined with typhoid fever. He united, in an unusual degree, energy and caution, to which was added a kindly manner that endeared him to all with whom he came in contact. When he assumed the management of the W. Warren Thread Works, in 1885, the concern was a small one; to-day it has a capital of $150,000 and employs several times the original number of hands. While his name is less directly linked with the Foster Machine Co., Mr. Warren will, in memory, be equally associated with that enterprise which promises to become Westfield's largest industry at no distant day. While busy with the affairs of the Warren Co., he organized, and as manager and president, developed the Foster company, which now has a capital of $150,000 and a place in the front rank of textile machinery builders. Indeed, the concerns were so inseparably connected through his agency, that a few months ago a handsome gothic office building was put up for the joint use of the companies. Mr. Warren, however, did not live to enter it. A year ago, not content with his achievements, Mr. Warren organized the Westfield Creel Co., with a capital stock of $100,000. Its stockholders include many of the largest mill owners in the country, although the enterprise is only in its infancy.

Mr. Warren was born in Portland, Me., Sept. 2, 1855. His earlier business experience was gained in representing the Warren Thread Co. and the Ashland thread Co., in New York and Philadelphia. For seven years he was a member of the famous Seventh regiment of New York. During that period he sustained two severe sun strokes which so affected him that he was obliged to conduct business during the heated term, from the mountains or seashore. He was a thirty-second degree Mason, being connected with a Philadelphia lodge, was prominent in the Home Market Club, of Boston, and a member of the Business Men's Association and the Nayasset club, both of Springfield.

He is survived by his father, William Warren, president of the Warren Thread Works, two brothers, Arthur W., of Westfield, secretary and treasurer of the Warren Thread Works, and secretary of the Foster Machine Company; Charles B., a student in Lehigh University, and a sister, Mrs. Edward L. Smith, of Portland, Me.

—We have received from the Howard & Bullough American Machine Co., Pawtucket, R. I., manufacturers of cotton machinery, a very handsome and convenient vest pocket diary, with memorandum in the back, space for cash accounts and addresses. This is an extremely neat little volume, and a perfect vest pocket companion, and seems to cover the three points so essential for convenience, and so handy a volume is an extremely welcome every day companion, without taking so much room as to be in any way cumbersome. The same company is also sending out attractive blotting pads for desk use, and will, no doubt, be pleased to mail one of the latter on application.

—Messrs. Gilbert Bros. & Co., Newton Upper Falls, Mass., have established a new and commodious office at 202 and 204 Purchase St., Boston, where, with improved facilities, they are in position to do a larger business than ever in Commercial Lactic Acid Mordant. They also handle a full line of dyestuffs and chemicals.

QUESTIONS AND ANSWERS.

Under this head we shall undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

Number of Spindles in Europe.

Editor Textile World:

Will you please tell me how many cotton spindles there are in England and in all Europe? J. F.

[It is estimated that in Great Britain there were, in the latter part of the year 1894, about 45,270,000, and on the continent of Europe, 27,350,000 spindles.]

Napping Machine for Hosiery.

Editor Textile World:

Is there a machine made in this country for napping finished hosiery, such as is being sold under the name of fleece lined goods? By assisting us in obtaining this information you will greatly oblige

Yours truly,
W. Knitting Mills.

[The goods sold as fleece lined hosiery are usually made out of stockinet fabric which has been fleeced in the roll before being fashioned. We believe Lewis Jones, of Bristol, Pa., manufactures such a machine as our correspondent wishes to know about.]

Can Cost of Baling be Saved.

Editor Textile World:

If cotton was properly ginned and delivered to the cotton mill in the North directly from the gins, without baling, how would the cost of turning it into yarn compare with cotton received by the mill in bales?

St. Louis. C. H. M.

[Of course, an appreciable amount might be saved if there was little or no handling to be done between the gin and the picker, but the saving made in this way would probably be threefold eaten up by increased charges in other directions. There appear to be no statistics of any sort showing the results of any such attempts, which, if made, must have been on so small a scale as to be of small practical value. The plan brings with it three serious questions. First, that of insurance. Indemnity is almost invariably to be had at some rate, which, in this case, with increased surface and greatly enhanced chances of combustion, would be prohibitory. Second, storage facilities. These would have to be increased several fold. In fact, it is a question if this alone would not prove insuperable. Third, moisture. In damp weather one would not dare to say what the gain of percentage in weight would be; in dry, the more rapid loss of weight would be something of a compensation. The matter is productive of endless speculation, entertaining, but from our viewpoint, unprofitable, certainly to northern mills, and any figures adduced would be simply theoretical estimates. It is an open question after all if the scheme could be made practicable if the three obstacles mentioned could be overcome.]

Dampers.

We have on our steam plant two boilers of 100 h.p. each. Our only way of regulating the draft is by the ash pit doors, as there is no chimney damper. I would like to know if we could not save coal by having one put in, and if so how much? C. F. H.

[Running furnaces without a chimney damper is one of the most expensive experiments one can try with their steam plant.

The chimney will "draw" continually unless some way is provided to check the draft. While the air comes up through the fire it may be all right, but as soon as the ash pit doors are closed, every crack or crevice in the setting, or around the doors, has air forced in through it, and every time the fire doors are opened a volume of cold air rushes in. The result of this is a gradual destruction of the setting, and a repeated cooling of the boiler, which necessitates an extra supply of coal to offset it. In addition to these, the practice of allowing cold air to rush in and strike on the heated boiler plates is sure to injure them in time.

The actual saving of coal depends much upon the firing, but a damper should save many times its cost in a year, in fuel alone, aside from the saving to the furnace and boiler itself.]

A Machine for Carbonizing.

Editor Textile World:

Can you inform me who makes the best machine for carbonizing wool and shoddy? I want to do it by the dry process. Any information you can give me will be gratefully received.

Yours truly,
S. M. Y.

[Some years ago the process of dry carbonizing was extensively experimented with for wool and shoddy, but we believe the results were not satisfactory, and at the present time we are not aware that there is any machine successfully used in the dry process on wool and shoddy. The dry process is used to quite an extent in carbonizing cloth. The Middlesex Mills, at Lowell, have a plant in successful operation. The Kitson Machine Co., Lowell, Mass., make an excellent machine for carbonizing by the wet process. If any of our readers know of the successful use of a machine by the dry process, we should be very glad to hear from them.]

Kerosene in Boilers.

Being about to try kerosene in my boilers as a scale preventative I am informed that it causes a boiler to leak, also that it acts on the iron in such a way as to weaken it. Will you give me your opinion on the subject, and greatly oblige

Yours respectfully,
Agt.——Mills.

[Kerosene oil has no effect upon live iron, it only effects oxide of iron (rust) by lifting the oxide from the live iron. If boilers are made tight by the formation of oxide in joints, or if boilers are made tight from the formation of scale in joints, or around holes, then kerosene oil will make them leak by removing the scale and removing the oxide. If the iron of boilers is already weakened by rust and corrosion, and kerosene oil is used, it will remove this rust and corrosion, bringing it down to the solid live iron, thus far and no further. There is nothing in kerosene oil, in any manner, to affect live iron. There are over one thousand manufacturers to-day feeding kerosene oil into their boilers by the drop, many of them having had it in use for several years. If there was anything deleterious in its use engineers, boiler inspectors, and boiler insurance companies would have discovered it long ere this. The inspectors for some of the largest boiler insurance companies in the country are among the strongest advocates of the use of kerosene oil for the prevention of scale.]

A Measuring Machine.

Editor Textile World:

Will you kindly furnish us with the address of makers of cloth folding and measuring machinery. We want a machine to fold and measure cloth that is forty-five inches wide, laying it in lengths or folds of one yard. W. L. L.

New York City.

[Elliot & Hall, 54½ Hermon Street, Worcester, Mass., manufacture such a machine as you desire.]

Right Angle Bends.

NEW ORLEANS, Feb., 1895.

I read with interest a recent article in your magazine, by Rex, entitled "Right Angle Bends." It seems to me very easy to avoid a sharp angle where one has the room, by bending the pipe into a quarter circle, the larger the better, for in doing so, you avoid the enlargement at the elbow, which Rex speaks about as a water trap, also have less friction than where the common elbow is used. I have never seen this tried, but should like to know why not? J. P. N. B.

[Years ago, the forge for heating and apparatus for bending pipe, was as much a part of a piper's outfit as the vise is to-day. It was discarded by the advent of the elbow for three reasons; first, because of convenience in laying or repairing; second, to economize in room, and thirdly, to save time, and consequently expense, in putting in pipe. There is now a movement on foot to partly reinstate the old style of piping, at least to the extent of using long elbows, which will remedy part of the difficulty of short bends, but not, of course, to the extent of not using any.]

New England Mill Statistics.

Editor Textile World:

Will you kindly give the following information: the amount of spindles and capital invested in cotton manufacturing in the New England States, in the years 1880, 1890 and 1894? ——Mills.

[The information which you want is not attainable from any one source at hand, but from census reports and statistics in the possession of the TEXTILE WORLD, the following data has been secured, which will be found to be practically correct.

	1880	1890	1894
Spindles	8,619,134	107,36,155	12,350,000
Capital	157,590,880	243,153,249	281,000,000

It may be said, by way of explanation, that the figures for 1880 and 1890 are from United States census reports. Those for 1894 are based on information contained in the TEXTILE WORLD Directory and records of growth preserved by the TEXTILE WORLD. The 12,350,000 spindles given as in operation in the earlier months of 1894, can scarcely vary 100,000 at most from the actual. The capital employed in 1894, is deduced from the increase of 1890. That is, the TEXTILE WORLD assumes that if the 10,000,000 spindles of 1890 called for an investment of $243,000,000, the 12,000,000 odd spindles of 1894 must involve about $281,000,000. It is perhaps wise to shade this estimate to $270,000,000, or even $260,000,000, owing to the depression of values, for capital in 1894 could hardly fail to go further than in 1890. It is impossible to secure the amount of capital invested in 1894, from census returns. Massachusetts is the only state that attempts to get at these figures yearly, and even in the statistics of 1893, nearly 70 mills are lacking in the State report.

Works on American Knitting Machinery.

WEST SAND LAKE, N. Y., Jan. 17, 1895.

Editor of the Textile World:

Will you please inform me if there are any books dealing with setting up and operating of knitting machines? C. S. H.

[Aside from information published in the trade journals, and the descriptions published in manufacturers' circulars, there is really nothing along this line on American knitting machinery. As little foreign knitting machinery is in operation in this country, foreign works of this sort would prove of little value. The TEXTILE WORLD begins in this issue a series of articles on this subject.]

—The M. A. Furbush & Son Machine Co., of Philadelphia, report somewhat of an improvement in the woolen machinery trade.

PATENTS

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George W. Gregory, in November, 1874, resigned his position as Principal Examiner U. S. Patent Office to enter the firm.

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HOPEDALE, Mass., January 2d, 1893.

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List of Textile Patents Issued January, 1895.

Specifications and drawings furnished for fifteen cents each. In ordering specifications give both name and number. Address "Patents," P. O. Box 222, Brooklyn, N. Y.

Apparatus for Drying Warp Threads. 532,262. G. R. Burns, Lawrence, Mass.

Blue Disazo Dye. 532,125. A. Weinberg, Frankfort-on-Main, Germany.

Carding Engine Stop Motion. 533,093. H. T. Spencer, Biddeford, Me.

Card Grinding Machine. 532,331. C. Mills, Newton, Mass., assignor to the Pettee Machine Co., same place.

Circular Knitting Machine. 532,758. C. E. Kelley, Laconia, N. H., assignor of two-thirds to J. A. Burleigh and H. Tucker, same place.

Circular Knitting Machine. 533,215. W. R. Dillmore, Philadelphia, Pa.

Cloth Steaming and Sponging Apparatus. 532,744. R. C. Moran, Sherbrooke, Canada.

Cotton Press. 532,386. S. D. Murray, Dallas, Texas.

Cotton Press. 532,749. C. Banister, Waco, Texas.

Cotton Press. 532,751. C. Banister and J. Holdingsworth, Waco, Texas.

Device for Tightening Loose Spindles. 532,190. P. S. Snyder, Jacobus, Pa.

Dyeing Apparatus. 531,487. T. F. Kyne, Amsterdam, N. Y.

Felting Machine. 532,875. R. Heaton, Howell's Depot, N. Y.

Gig Mill. 532,940. G. & H. Blanche, Paris, France.

Knitting Machine Feeding Attachment. 532,957. J. D. Hemphill, Huntington, Conn., assignor to C. B. Alling, Birmingham, Conn.

Knitting Machine Striping Attachment. 532,203. M. A. J. Keane, Amsterdam, N. Y., assignor of one-half to J. H. Giles same place.

Loom for Weaving Turkish Carpets. 533,330. R. Von Seydlitz, Munich, Germany.

Loom Let-off and Take-up Motion. 532, 341. C. B. Rumsey, Homer, N. Y.

Loom Let-off and Take-up Mechanism. 532,311. F. G. Chambers, Syracuse, N. Y.

Loom Loose Reed Motion. 533,314. W. McMichael, Woonsocket, R. I., assignor to Woonsocket Machine & Press Co.

Loom Pattern Mechanism. { 533,256 / 533,257 } W. Wattie, Worcester, Mass., assignor to Knowles Loom Works.

Loom Picker. 532,558. C. W. Holbrook, 2nd, Providence, R. I.

Loom Reed. 532,340. C. B. Rumsey, Homer, N. Y.

Loom Shedding Mechanism. 532,225. H. Wyman, Worcester, Mass., assignor to Crompton Loom Works.

Loom Shuttle. Thread-regulating device for. 533,204. H. Bardsley, Philadelphia, Pa.

Loom Shuttle Guide and Tension. 532,512. J. Williams, Philadelphia, Pa.

Machine for Applying Powder to Fabrics. 533,305. J. E. Lee, Conshohocken, Pa.

Machine for Winding Fabrics into rolls. 533,304. J. E. Lee, Conshohocken, Pa.

Ornamenting Selvage of Pile Fabrics. 532,801. A. P. Mengers, Berlin, Germany.

Photographing on Textile Fabrics. 532,173. R. Martin, St. Paul, Minn.

Red Dye. 532,479. K. Pathe and O. Dressel, Elberfeld, Germany.

Spinning Rings. Manufacturing. 532,174. M. D. Marcy, Worcester, Mass.

Sulfur Dye. 532,484. A. F. Poirrier, Paris, France.

Sulfur Dye. 532,503. R. Vidal and A. F. Poirrier, Paris, France.

Textile Fabrics for Tubing Envelopes. 532,902. J. F. Palmer, Riverside, Ill.

New Machinery and Processes Coming on the Market.

Items for this department are inserted without regard for advertising patronage or money consideration. We want them as news, and any one sending such particulars will confer a favor on the editor. The statements made are claims, and must not be understood as officially endorsed by the editor.

NEW AUTOMATIC RIB KNITTER. The Hodgson & Holt Mfg. Co., of Laconia, has just completed a new automatic rib knitting machine, for the manufacture of rib legs for women's and misses' hose, and tops for half hose and cuffs for underwear, to be known as the Carter ribber. It will make any length with loose course and welt, and with or without re-inforced knee and high spliced heel. All the changes are made by Carter's compound wheel, which is compact and simple, with no long chain or card clothing to change. The machine is thoroughly built, and is easy to handle. Its price is much below that of the Abel ribber, which the firm has been building.

NEW SINGLE STITCH LOOPER. A new looper for single stitch has been put upon the market by the Hodgson & Holt Mfg. Co., of Laconia. The old looper made by this concern can be used either as a looper or a seamer, but its price has been an objection. It is claimed the new looper can be sold as low as any in the market.

KNIT GOODS BRUSHER. A brusher, operating on both sides of knit fabrics, is being manufactured by Lewis Jones, of Bristol, Pa. The feed rolls are close to the brusher for convenience on short length goods, and swiftly revolving sweeps pass the goods out of the machine, avoiding the catch rolls. The machine is intended to fill the requirement for a durable device that will raise sufficient nap without cutting or perforating work. Brushers of this pattern which have been running several months, are said to show little deterioration.

KNITTING MACHINE. The National Automatic Knitter Co., 728 Cherry St., Philadelphia, are about bringing out a new machine, which possesses a number of interesting points, which we trust to lay before our readers in the next issue of the TEXTILE WORLD.

AUTOMATIC KNITTING MACHINE. The Double Automatic Knitting Machine Co., Philadelphia, are about to put on the market a new automatic machine for the manufacture of seamless hose and half hose.

PATENTS

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COTTON DEPARTMENT.

Designing for Calico Printing.

II.

COLOR.

For the Textile World.

Almost as important as correct drawing and management is a thorough knowledge of the harmony and principles of color to secure a successful result in designing. The color scheme is always more or less limited, owing to the method of reproduction, which requires that it should be absolutely correct. Many a poorly drawn design may be made to look fairly satisfactory by a judicious selection of colors.

Scientists say that all color is light, and that objects themselves do not possess color, but have only the ability to refract rays of light. Every ray of light is composed of three colors, blue, red and yellow, which are called the primary colors, and each of these blending with those contiguous, produce three more called secondary colors. The blue blending with the red causes purple, the red with the yellow produces orange, and the blue and yellow mixed gives green, and each brings an infinite number of shades.

The primary and secondary colors with black and white are the foundation of all color; any shade can be produced therefrom. Were it possible to obtain pigments as pure as the colors in the prism or rainbow, only three colors would be necessary, red, blue and yellow; but no coloring matter has yet been discovered that is as pure as any of the prismatic shades. Carmine red is the nearest, yet it contains a bit of blue. Cobalt approaches nearest the prismatic shade of blue, but holds an element of red. Chrome yellow, the brightest yellow, is not quite pure, being slightly tinted with red or green as it inclines toward a rich or pale shade. As a consequence of artists' pigments not being as pure as the prismatic rays, many other colors are used to obtain the most suitable shades, though the more nearly akin to the prismatic colors the designer keeps his palate, the better the result.

When only the primary and secondary colors are employed the best combinations of color are comparatively easy to master; a primary always makes per-

fect harmony with its complementary color ; that is with a color composed of a mixture of the other two primaries. For example, green being composed of blue and yellow makes a perfect harmony with red; purple, a mixture of red and blue makes a harmonious contrast with yellow. Orange, a mixture of yellow and red contrasts perfectly with blue.

A glance at some favorite flowers will illustrate. The moss rose with green and red, a violet or pansy with a yellow centre, a blue forget-me-not with an orange centre.

The accompanying diagram will assist the student, the opposite sections of the circle harmonizing perfectly. As to the tertiary colors, the combinations of all the primaries in different proportions, which produce russet, olive, bronze, ecru, and many other tints of a neutral tone it is almost impossible to give a formular, there is such an unlimited number of shades.

M. Chevruel, the eminent French scientist who made color his life work, has published a book, in which is given an exact statement of the different proportions of each color to produce a perfect harmony in the tertiary colors. It is a safe rule in combining colors to remember that the quieter colors, — those having an admixture of black and white are less liable to produce disagreeable harmonizing than those more vivid. Colors harmonize by similarity and by contrast. A yellowish flower with yellowish green leaves would form a harmonious contrast on a dark red background, the flower and leaves forming a harmony of similarity. A black coat, white cuff, and human hand form a commoner example; the black and white make a fine contrast, the white and flesh color a harmonious similarity. It is always well to introduce these harmonies in a design.

Yellow, orange and red are spoken of as the warm colors, approaching nearly the tones of sunlight; blue, green and purple as the cold colors. A small quantity of cold color is always effective when introduced in a mass of warm shades, and vice versa, each serving to intensify the other. White always brightens blue. It is nearly always safe to introduce white in small quantities in a design as it tends to brighten the general effect.

An intelligent study of flowers and leaves is extremely helpful to the student of harmony in color, color being carried to greater perfection in that department of nature, than in any other. It is probable that the Japanese, Persians and other Oriental races are indebted to the lovely flowers that constantly surround them for their wide knowledge of color harmonies. A study of the sunsets and sunrises is also good education for the designer, as he will often see there combinations that otherwise would never have been suggested.

(To be continued)

Chats on Cotton Combers.

For the Textile World.

XI.

"We will now proceed to the first intermediate. Set the steel rollers, put the center of the middle roller 1 $\frac{3}{8}$ inches from the centre of the front roller, and the centre of the back roller, 1 25 32 inches, from the centre of the middle roller, then set the top leather rollers the same distance.

"Now take the gears to get the draught.

1 inch diameter of back roller.

Back roller and pinion gears are changeable.

80 crown gear

20 front roller gear.

1 1-4 inches diameter of front roller.

"I want to make 2 50 hank roving at this process and we have one hank slubber roving to put in the creel at the back.

"One hank roving=100 grains, for 12 yards, multiplied by 2 doublings= 200 grains for each 12 yards going in at the back. 2.50 hank to be made at the front = 40 grains, thus, 100 (the dividend for 12 yards of roving) ÷ 2.50 (the hank roving) = 40 grains.

"Now take 200 (the roving going in at the back) and divide by 40, (the

weight for the same number of yards at the front) = 5, (the draught required.)

"Now take the gears and get the constant number for the pinion and back roller gears $\frac{80 \times 1\frac{1}{4} \text{ in.}}{1 \text{ in.} \times 20} = 5$

which is the constant number.

"You will see that the constant number is the same as the draught required; therefore, the back roller, and pinion gear must have the same number of teeth in each, so put on a 50 back roller and a 50 pinion gear; thus 50 multiplied by the constant number 5 and divided by 50 = 5, the draught required.

"We will now work on the twist. The following are the gears.

130 gear on end of front roller.
48 " " " top cone.
48 " " middle " "
20 to 70 twist gears.
40 gear on main shaft.
42 " " end of spindle shaft.
55 " " spindle shaft.
30 spindle gear.

"By taking these gears and putting the drivers on the top line and multiplying them together, and putting the drivers on the bottom line (leaving out the twist gear) and multiplying them together and dividing the top line by the bottom gives a constant number, thus,

$$\frac{130 \times 48 \times 40 \times 55}{48 \times 42 \times 30} = 227 \text{ constant number.}$$

"Now to find out how much twist should be put in one inch of 2.50 hank roving, take the square root of 2.50= 1.581, multiplied by 1.10, the number of turns required for one inch of hank roving (long staple cotton)=1.74, twist per inch required.

"Consequently, it will be necessary to find what twist gear will turn out one inch of roving while the spindles are making 1.74 turns.

"The front roller is 3.92 inches in circumference, and if the spindles revolve 1.74 to one inch of roving delivered by the front rollers, how many revolutions will the spindles make while the front roller is making one revolution, or 3.92 inches? 1: 3.92 :: 1.74=6.82. 227 constant number ÷ 6.82=33, twist gear required. Put on a 34 rack gear and an 18 lay gear.

"Now get a second intermediate ready. Set the steel rollers $1\frac{5}{8}$ inches from centre to centre, both the middle and back rollers.

"The constant number (5)is the same as on the first intermediate for the draught. Now I want to make 7.50 hank roving at this process. 7.50 hank roving= 66 2-3 grains for 60 yards, 2.50 hank roving to be put in the creel at the back. 2.50 hank roving=200 grains for 60 yards multiplied by the doublings 2= 400 grains at the back, to be divided by 66.66 = 6, draught required.

"Put on a 48 back roller gear; multiplying by 5, the constant number,=240; then divide by the draught, 6=40, pinion gear required.

"We will now get the twist. The following are the gears.

130 gear on end of front roller.
44 " " " " top cone.
56 " " middle " "
20 to 70 twist gears.
40 gear on main shaft.
37 " " end of spindle shaft.
55 " " spindle shaft.
22 spindle gear.

$$\frac{130 \times 56 \times 40 \times 55}{44 \times 37 \times 22} = 447.17 \text{ constant number.}$$

"The square root of 7.50, the hank roving,=2.739, multiplied by 1.10=3.01, the twist per inch required. 3.01×3.92, the circumference of the front roller,= 11.79 revolutions of spindles to 1 revolution of the front roller. 447.17, the constant number divided by 11.79,=38, the twist gear required. Put on a 45 rack gear and a 17 lay gear.

"Now go to the fine speeder. The constant number for the draught is 5. Set the steel rollers $1\frac{5}{8}$ inches from centre to centre. Put on a 50 back roller gear and multiply by 5=250, and divide by 5.86=42.7; put on a 43 pinion gear that will give a 5.81 draught. 66.66×2 doublings=133.32 grains at the back, for 60 yards ÷ by 22.71 (grains for 60 yards at front)=5.87, draught required.

"We will divide 22.71 into 500, that will give the hank roving we are making 500÷22.71=22 hank roving.

"Now get the twist. The following are the gears.

130 gear on end of front roller.
36 " " " " top cone.
56 " " middle " "
20 to 70 twist gears.
40 gear on main shaft.
37 " " end of spindle shaft.
55 " " spindle shaft.
22 spindle gear.

$$\frac{130\times56\times40\times55}{36\times37\times22}=546\ 54$$ constant number.

The square root of 22 the hank roving= 4.6904. $4.6904\times1.10=5.16$, twist per inch required. 5.16×3.92 the circumference of roller=19.22 revolutions of spindles to one of front roller. 546.54 constant number÷19.22=28, twist gear required. Put on a 52 rack and a 13 lay gear.

"The same precautions must be taken on these three processes in regard to cleaning clearers, fliers, etc., that is taken on the slubber. The rollers must be oiled regularly, and the speeder tenders must be very careful about dropping the oil on the leather when they are oiling."

Finishing and Glazing Calendars.

One of the apparatus which has been subjected to the greatest modifications is certainly the calendar: its use dates back several centuries, and even if it can not be exactly determined when it was invented, it is known that it was in use in Italy in the 15th century.

The French obtained it from the Italians and the English in turn from some French refugees, who carried it to England.

The very earliest calendar which approaches the construction of those in use at the present day, was constructed somewhere about 1790, by a man named Bunting.

This calendar consisted of three cylinders or bowls, two being of wood and the intermediate bowl of metal and hollow and was heated by bars.

The simple calendar, consisting of two bowls, running one above the other, and pressing upon the fabric is indeed of European invention, but the necessity of glazing or lustering goods exists also with people who have no sort of industry, for in Senegal the natives have used, since time immemorial, a little bench which they call "tapaika." They place it on their knees like a table, then spread upon it their blue stuffs, and rub these with shells, the fabric previously having been coated with wax, rice water and slightly perfumed.

The very primitive glazing machine constitutes a piece of family furniture and is generally adorned with white, red and black designs.

The Chinese also glaze their cloths and their machine has a great resemblance to the German "mangle." The fabric rolled by hand upon a wooden roller is placed on a hard and level platform; two rollers are placed beside each other a few inches apart, then a large block of wood, which resembles somewhat a small ship, is placed above, that is, the top is horozontal and the bottom forms an arc of a circle. A workman places himself on this block, and, holding by his hands to a bar fixed in the wall, he makes the block slip with his feet, by pressing upon one or the other extremity. In this way a sort of to and fro movement is made, which acts upon the rollers and carries them along by friction. This movement repeated a number of times gives a certain lustre to the fabric.

The simplest calendar consists of two cylinders, one of which is metal and the other paper. By means of screws, levers, etc., a pressure is given to these bowls, between which the fabric passes, and the fibres thus become flattened. The ordinary finishing calendar does not glaze, and calendars may have from two to seven bowls, and may be worked either hot or cold.

Hot calendaring is done in various ways; the most primitive method is heating by bars.

The metal bowl, which in this case is hollow, is heated by a red-hot bar of iron. The method is still employed when great heat is required, but is very injurious to paper bowls. This system

has the great drawback of it being utterly impossible to produce a well-regulated heat, and also the laborious and tedious manipulation of the heated bars.

Another very convenient method of heating is by gas. Its application is simple, it is economical, in consequence of its continuous work and regularity.

The combustion is accelerated by a mixture of air under strong pressure, produced by a fan. The gas must burn blue and with intensity. If lamp black is deposited, it shows incomplete combustion; it also must be lighted very cautiously, as an explosion is easily caused.

Heating by gas and hot bars, gives the highest temperature and consequently the most beautiful glaze can be obtained.

Heating by steam gives less satisfactory results; a pipe with two flanges is inserted in the bowl to be heated, and the steam is admitted at one end, and at the other a copper pipe is fastened, which projects into the cylinder, and serves for the escape of condensed water to be taken off by a steam trap placed at the outlet.

When the cylinders are at rest, care should be taken to isolate the bowls, otherwise the pressure upon the paper one forms a furrow, which is reproduced in stripes across the fabric.

The use of steam heating causes so little detriment to the paper bowls that they last from ten to fifteen years, without being returned, whereas the red hot bar system has such an effect on the paper bowls, owing to the intensity of the heat developed, that they become quite soft, and have to be returned after three or four years working, and sometimes the paper falls off in large scaly pieces.

From the preceding remarks it is obvious that to obtain a good calendaring it is better to use a strong pressure with a lower temperature.

Calendars having to finish or glaze the fabric without injuring the fibres, it is necessary to use a hard metal bowl against a less hard or elastic bowl. Wood bowls under ordinary conditions, would not stand the required pressure, would warp and would not glaze well. So several kinds have been invented, of paper, of old ropes, of linen, of parchment, of cellulose, of abestos, of India rubber, of glass, even. Also stoneware, porcelain, earthenware, metal centre covered with cement, artificial stone marble. All these methods are superceded by the steel bowl and paper bowl, which are most generally used to-day.

The Saw Gin Has a Champion.

Editor of the Textile World:

St. Louis, Jan. 22, 1895.

Under the caption "The Handling of Cotton," in the December number of the TEXTILE WORLD, the good qualities of the English "Knife" gin are extalled above all others, and in the same breath the American saw gin is held responsible for all the injury done to American cotton. The saw gin is a machine, that in the hands of a skillful operator will do perfect work. Nine times in ten, where the fibre is injured in ginning, the fact is directly chargeable to the carelessness and ignorance of the ginner, not to the saw gin. A person ignorant of the nature of the cotton fibre is unfit to have charge of any process of its manufacture. Ginning is the first, and really one of the most important processes of cotton manufacture. In this country, the ginning is usually done by the plantation darkey, or by a white tramp who is entirely ignorant of the nature of the fibre, and is, if possible, more careless than the negro. For length of staple and delicacy of fibre, Sea Island ranks all other American cottons, and is ginned, I believe, exclusively on roller gins.

In the hands of a skilful operator, the saw machine will gin Sea Island cotton without injury to the fibre, and at a rate of speed that would, if generally known, relegate the roller gin to the scrap heap. So long as the growing, ginning, baling, compressing, transporting, handling and classing of cotton remains in

the control of prejudiced and ignorant people, or of those whose greed of immediate gain is paramount to all other considerations, every effort in the line of betterment will be stamped out, or at least neutralized, and so reform in present methods cannot be expected.

C. H. M.

Prof. Charles Toppan.

Prof. Charles Toppan of Salem, who died a few days ago, was a scientific investigator of positive genius. Many textile manufacturers will remember his researches concerning the ramie fibre. Twenty-five years ago, Prof. Toppan virtually gave to the world the mackintosh, by introducing the waterproofing of fibres and fabrics. Soon after, he discovered petroleum jelly, better known as vaseline, which was the forerunner of paraffine paper, so largely used for confectionary wrapping.

Quickly following, came the development of his mineral oil emulsions, which have saved manufacturing and insurance corporations countless dollars, and in connection, the discovery of myro-petroleum remedies. Contemporaneously with these, Prof. Toppan devised the cancelling inks, used by the United States government, butter color, etc. The number of petroleum soaps, clearene and washing compounds, paint and mineral drying oils, cotton seed lards and other commercial products of value, which Prof. Toppan originated, will probably never be enumerated. His cotton bleaching processes were radical departures, while the means he adopted for neutralizing the acid of red oils, led to his discovery of wool-scours. In the gums extracted in his treatment of fibres, Prof. Toppan found a new and perfect insulator, which led him into the field of electricity. In this field, he discovered an economical treatment of carbon pencils and brushes, and in connection, a hydrogen water of uncommon efficacy in primary batteries. One of his later discoveries was a method for eliminating impurities from "refined" oils, one of his patents in this line now being controlled by the Standard Oil Company. Prof. Toppan leaves especially valuable collections of fibres and hydro carbons, and the Smithsonian Institute, the Agricultural department at Washington, the Agassiz Museum at Cambridge, and Kew Gardens, London, all have exhibits of his chemical products. Prof. Toppan was as much a kind-hearted gentleman as a scientific investigator, and had he not been engrossed in the humane aspect of his life work and been a better "business man," he might have amassed a great fortune.

Artificial Silk.

For the Textile World.

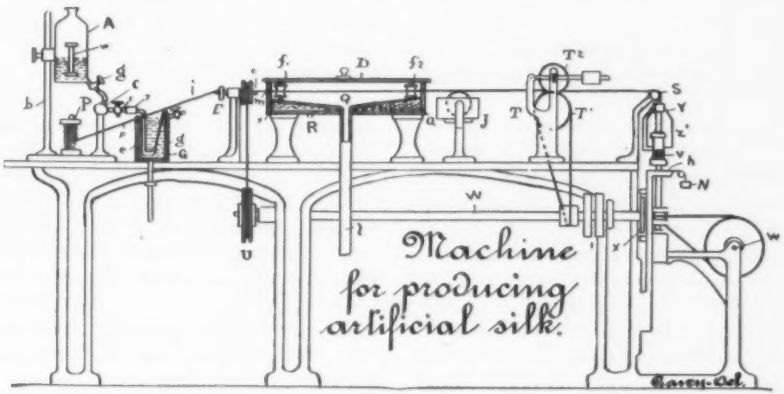
Many inventions have been patented within ten years for the production of artificial silk, but in almost every instance, the machines were incapable of producing it in quantities sufficient to make its manufacture an object. This objection, however, has been overcome, so it is claimed, in a machine invented by Dr. Sehner, of Zuric.

The method of the operation is briefly described as follows: A solution composed mainly of nitro cellulore, is made to flow from small orifices into a liquid, such as water, turpentine, etc., and is drawn out into a fine thread. To produce such a thread from a five per cent. solution of nitro cellulore is a comparatively easy matter, but when, in order to obtain stronger threads the nitro cellulore in solution is raised to ten per cent., the solution becomes so thick that the production of a thread requires a pressure of several atmospheres to make it flow through the minute orifices. The inventor avoids this difficulty, by treating a strong nitro cellulore solution with sulphuric, or other mineral acid. As an example, to a twenty per cent. solution of nitro cellulore in wood spirit or ether, one-half parts of sulphuric acid are added and heat applied. A compact precipitate, redissolving on shaking, is produced, and the solution is then much clearer and more mobile than before. The machine for manu-

facturing the threads, closely resembles an ordinary spinning frame, and is constructed as follows: The emulsion which has been prepared is put in the large glass bottle A, provided with the gauge glass W, and can be adjusted higher or lower on the support B. This glass bottle is connected by a rubber tube G with a long glass tube C, which has a large number of outlets at regular intervals, connected by a number of rubber tubes R, to a corresponding number of S shaped glass tubes E.

The upper bend hooks over one side of a trough G; the lower bend is close to the bottom of the trough, and the bent up end is made to terminate in a narrow aperture, the size of which regulates the thickness of the strand to be formed by the emulsion passing through it. From this narrow aperture the solution enters the solidifying liquid contained in G. Any solidifying liquid may be used, as turpentine, water, or petroleum. The glass tubes are kept apart in the trough G, by loosely inserted glass partitions, which do not impede the circulation of the liquid, but prevent the filaments from becoming entangled, should any break. Any number of filaments I—seven is a suitable number—are, as they form, conducted jointly to guides at E. At E, if desired, a thread or filament of any material, natural or artificial, may be added, for instance, a cotton thread or silk thread.

This additional thread is contained on the spool P, and is guided from the spool below the tube C over the trough G to the guide E. The united filaments I, and the natural filaments P, are now steadily drawn off by the mechanism T, and then guided through a narrow aperture to the drying chamber Q, which is made as air-tight as possible, and provided with a lid D. On leaving the drying chamber, the filaments reach the dinitrating appliance T. This consists of a roller partly immersed in ammonium sulphide, which disposes of a part of the nitro groups, and neutralizes any free acid which may adhere to the filaments. By the drawing forward mechanism T, the filaments are then drawn over the guides S to the spinning apparatus X, which may be of any suitable construction.



—Francis Hathaway, 65, of New Bedford, died January 20, of heart disease. He had been president of the National Bank of Commerce, of that city, since 1878, and was largely interested in the local cotton factories. He was a director in the Acushnet, Hathaway, Howland, Potomska, Rotch and Wamsutta mills.

—Thomas Nuttall, brother of William Nuttall, proprietor of the Rankin Knitting Mill, of Cohoes, is dead. Mr. Nuttall was formerly overseer in the finishing departments of several of the Cohoes knitting mills.

—Henry O'Bryan, 71, of Amsterdam, N. Y., is dead. He leaves a widow and one son. Several years ago, he, in company with Edward McDonnell and James R. Snell, built the Interior Hosiery Mill, with which business Mr. O'Bryan had always been associated.

WOOLEN DEPARTMENT.

Kerseys.

For the Textile World.

The fabric which has attracted the greatest attention during the present heavy weight season, is the smooth faced "kersey," named for the place of its most extensive manufacture, in England. The past few years the rough faced cloths formerly in general use for men's overcoatings have gone out of style, and the tendency has been toward smooth faced goods, at first meltons, now kerseys of all grades.

The last two years kersey mills have been practicably sold up, so that some of the more prominent manufacturers have run their carding and spinning departments night and day.

Between the light weight season and the present heavy weight one, commission merchants and manufacturers were searching around for some staple, and by the number of kersey lines on the market, it would seem that almost without exception this was the fabric decided on, there being more than eighty makes of it to sell for $1.25. It is, of course, a fabric which readily appeals to the manufacturer. Very few samples are required, and orders being confined to a few styles, the cost of production is less, and quantity more than if the mill was run with a multitude of styles, and the consequent multiplying of yarns and dyes.

This heavy weight season has been one of the largest in history, in the amount of overcoating business. The large number of lines has led to sharp competition, and among the weave makers consequent cutting of prices; but the manufacturers of established fabrics have made only one reduction in price.

The immense order business has been due to the smallness of clothiers' stocks. It is a fact that a great many houses have placed orders for three times the quantity they can use, awaiting the sample pieces, to see which make they will retain and which cancel. Consequently manufacturers must be more particular than ever in regard to the class of goods turned off; the buyers are becoming more and more critical every year, and the ease with which goods can be replaced, because of the large number of makes, causes them to become more and more independent.

Some mills, years ago, passed the experimental stage on this class of goods, and a manufacturer who has embarked on it for the first time would do well to study the methods they have employed. The face weave which is most extensively used is the four harness broken twill, three up and one down, this being backed in the warp, and filling woven on a plain weave, and both cloths stitched together by the eight harness satin weave. In no fabric should any other stitching weave be used, for in this weave the stitching is most evenly distributed and shows less on the face.

The most important factor in the making of a piece of goods is the stock used. No matter how low the price of a fabric, the face should always be "all wool," for in this way only can a smooth, desirable finish be obtained. In fabrics where cotton is used in the face, the finish presents an uneven appearance. Consequently they are worth considerably less than an all wool face with a cotton back and a fine finish on the face. One of the most successful fabrics now on the market, and one which has held first place in its class for years, contains cotton. There are many all wool fabrics which sell for less than this one, but it is always given the preference because of its beautiful finish.

The secret of this fabric lies in the fact that the face is made entirely of "Australian" wool, while the cotton is carded in the back filling.

The question of most importance in the manufacture of kerseys is probably the finish. The shearing is important, as the nap must be of just the length, and it requires experience to determine to a nicety just how low a piece of goods can be sheared and not show teethy. The steam finish is the only one for this character of goods, the cylinder steam finish being the proper finish. The goods must be steamed three or four times and then left on the roller until stone cold. In binding the cloth on the cylinder, care must be taken that there is nothing to ruff or mark the goods, and after the cloth has been on the steam brush it is imperative that nothing touch the face, for when a fibre is steamed it retains its place, and in this way a permanent blemish is made on the face.

Kersey Weaves.

For the Textile World.

It is said seventy-five makes of kerseys are shown, the price of which is $1.25. This number may be slightly exaggerated, but it is not far from the facts; more fabrics have been shown at this price, than the manufacturer has any idea of. The reason is that goods of that grade when made up into clothing, can be sold at a popular price.

Some of the makes shown are very poor, while others are creditable and a few excellent. Of course the majority of orders have been placed on the best lines. Manufacturers who have received orders on lines not up to the "notch," can change their position by making and delivering a fabric which is exactly right.

In a number of the makes shown, the principle fault is in the weave. Almost, if not all of these fabrics are constructed on the principle of two systems of warp to one of filling. The required weight is 27 oz., which is obtained by using a backing warp. This warp can be variously arranged, in proportion to the face warp, as one end face, then one end back, or the more generally used combination of two face warp threads to one backing thread, and in some instances three face to one back end.

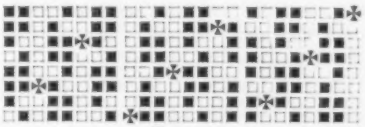


FIG. 1.

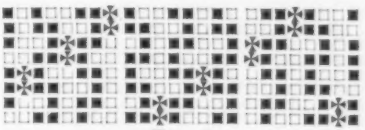


FIG. 2.

FACE. BACK.

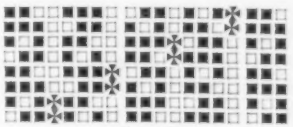


FIG. 3.

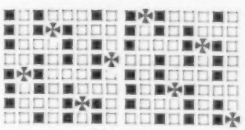


FIG. 4.

COMBINED.

Figs. 1, 2, 3, 4, show some weaves which have been used, but are in some way at fault. The weave in all these weaves, is the four harness broken twill warp face; the difference between them is the arrangement of the back and face and the back weave or stitching of the extra warp to the main body of the fabric. Fig 1, is constructed with two face ends to one of back, and the back warp is stitched to the face with an eight harness satin weave. Fig. 2, consists of the same proportion of back and face as Fig. 1, the difference in the face weave being, that the break for the back warp stitching, is between the first and second, and third and fourth ends of the face weave, instead of the second and third, fourth and first, as in Fig. 1. The

back warp stitching is also a twill, which is a very undesirable method of stitching, as in nine cases out of ten the twill stitching shows in the face of the fabric.

Fig. 3 is similar to Fig 2, the principle difference being in the disposition of the face and back ends, which is three face to one of back.

Fig. 4, is constructed of one face and one back, with the back stitched on an eight harness twill. These weaves are all good in their way, but they are not the best that can be used.

The only proper weave for this class of goods, is that marked, face for the face. It consists of the four harness broken twill, warp effect combined with the weave marked back, which is the four harness broken twill filling effect. These two weaves united in the weave marked "combined," form the best combination that can be obtained.

In designing weaves of this class where there are two systems of warp, the back ends when they are raised to stitch, must always be raised between two face threads, so that the face ends will cover the place where the stitching is, thus reducing the possibility of its showing on the face, when the fabric is finished.

If the proportion of one face end to one back end is used, the back warp yarn must never be heavier than the face warp yarn; if it is heavier, it will undoubtedly show on the face, on account of the inability of the face warp to cover it. If the proportion is that of two face to one back, then a large sized yarn can be used in the back, for there are two ends to cover every backing end.

It is important that special care should be exercised in the selection of the stock for the backing warp, if the cloth is to be subjected to the "fulling" process. The backing warp must be as nearly as possible like the face warp in the tendency to full. Some manufacturers have made goods which in the original fabric weighed about twenty ounces and to obtain the weight, they have flocked them up to 27 oz. "Flocks" are like strychnine, a little is an antidote, but too much is poison. Fabrics which are flocked up so, will kill themselves and the manufacturer, if he persists in using them. If a piece of goods is flocked as much as this, made into a garment, and then wet, the flocks drops down into the lining and leaves the garment like a rag.

Cassimeres.

For the Textile World.

The immense business done in taking overcoating orders, and the quickness with which it has been conducted, finds no parallel in cassimere lines. It seems that almost every mill making this class of goods, has produced fully twice as many samples as usual, consequently, buyers have large lines to go over and the orders are consequently slow. During the past light weight season, the market has demanded cassimeres of all grades in place of worsted, and the best grades are temporarily superseding the fine worsteds.

The Rocks made a line of cassimeres a year ago, which will illustrate the exact finish wanted at the present time. An examination of this fabric will show that it is about half way between a saxony and a cassimere, that is, in finish, the nap not being quite as long as a saxony nor as short as a cassimere. The styles in this fabric must be neat, consisting principally of small checks and fine stripes, such as hair lines, and double hair lines, and styles of similar coloring. The most decided change in these fabrics is the introduction of twist, the demand for which effects are so great that some manufacturers have equipped their mills so as to make nothing else.

For some seasons the only cassimeres which have sold have been made entirely in plain colors; now the cassimere fabric is still desired, but a change is wanted, and the only way to obtain it is by the introduction of twist which has readily taken a prominent place, for it gives a very different effect, without altering the character of the fabric. Cassimeres woven through and through have been

in general demand, that is, those in which the stripe has been composed entirely of one color, being produced by using a plain back and a plain face cloth and then interchanging. This class of fabric, using twist in both warp and filling, is the newest effect demanded for trouserings.

In suiting effects, the fabric is commonly made by using the twist only in the warp, and plain yarns in the filling. In some, however, instead of using silks, as is generally done, plain yarn is employed, which produces as showy a style and costs considerably less than silk. In cassimeres, the nicest and neatest effects for suitings are those made of a black ground with a very fine silk twist, put in irregularly, or in small check patterns. As the general tendency is toward dark styles for suits, they can readily be obtained in this way. The styles are still exceedingly neat, and between one season's patterns and another, there is scarcely a perceptible change, yet buyers searching for new effects generally select patterns, which, while essentially different from what has been sold, still preserves the neat character of the fashion.

Grinding the Teeth of Card Clothing.

For the Textile World.

The most important part of the carding operation, is probably the grinding and forming of the tooth. Many people have the idea that the teeth of card clothing are needle pointed. As all card clothing, however, has to be ground when in position, it is impossible to produce a needle point.

Since this point is out of the question from a practical view, the next best thing has to be substituted, the formation of a tooth with a chisel or knife edge, which is presented to the material to be carded. This tooth is usually obtained by what is called, "plough grinding"—that is, a method of passing between the teeth of the clothing a thin emery disc, which ploughs deeply between them and grinds them on each side until they present a sharp edge to the material to be carded.

The wire used as teeth may be round or square, or of any formation desired. But the emery disc, as it passes through, produces a flat section above the bend in the tooth. This method of shaping the tooth by grinding, is confined to the preparation of the clothing before being installed on the cylinder, but after the clothing has been installed and in use for awhile, it becomes dull and requires sharpening. This is effected when the cylinder is dealt with, by taking off the cover over the doffer, and bringing a grinding roller (which is in bearings especially for that purpose on the carding machine) into contact with the wire on the cylinder.

By slowly rotating the cylinder, and rapidly revolving the grinding roller, all the teeth on the first named are ground. A similar method is pursued with the doffer. The rollers and clearers are taken from the machine, and are ground in a special machine. The flats of revolving flat carding machines are also ground in position. The cylinder in the operation of grinding, is rotated at a slow velocity while the grinding roller is in operation. It would appear that if the cylinder was revolved at its working speed during grinding, the finished surface would be much truer. This, however, is not so, for experience shows that the best results are obtained where there is a quick velocity of the grinding surface and a slow movement of the surface operated on.

It is found that only by following this method can a true cylinder be obtained. The cylinder is, therefore, reduced to a velocity of from one-half to four revolutions per minute by various gearing. On some machines, the grinding apparatus requires a detachable piece of mechanism to effect the reduction in speed, while others are permanently attached to the machine, and can be thrown in or out of gear.

The grinding roller used is commonly equal in width to the cylinder, and is entirely covered with emery. Another method is to use a narrow roller

M. A. FURBUSH & SON MACHINE CO. PHILADELPHIA.
MAKERS OF WOOLEN MACHINERY.
THE MURKLAND INGRAIN CARPET LOOM.
Wool Pickers, Cards for Fine Wool and Mixed Yarn, Cards for Gray and Double Reeled Carpet Yarn, Cards for Coarse and Fine Worsted, with Breasts, Lickerin Attachments or Cylinders only, Cards for Shoddy and Felt, Hat Cards and Roll Cards, Card Clothing, Balling Heads and Reballing Machines for Worsted, Biamire Lap Feeds, Attachments for making Knickerbocker and Spotted Yarns, Vibrating Attachments for Ring Doffers, Rubbing Motions for Condenser Cards with Rolls only, Aprons only, or with Rolls and Aprons in Combination, Floor Grinders with Traversing Emery Wheels or Emery Cylinders, Side Drawing Spoolers, Card Stretchers and Turning Rests for Cards, Self Acting Mules, Hand Jacks, Ring Twisters for Spools or Bobbins and Attachments to same for making Looped Yarn, Dresser Spoolers for Wool or Worsted, Sectional Warp Mills, Universal Warp Mills, Beamers, Heck Stands and Creels, Warp Dressers with two or four Copper Cylinders, Jack Bobbin Winders, Looms for making Carpets, Smyrna Rugs, Rug Weft, Blankets, Repps, Table Covers, Paper-Makers' Felt and Light Looms for Woolen Goods, Heddle Frames, Reels for Dye Tubs, Teasel Gigs.

THE American Napping Machine Co.,

Owns the Principal Patents

on Napping Machines, representing the latest French, English and American Patents.

Machines on exhibition and samples napped on application to any of the following offices:

DAVIS & FURBER MACHINE CO., Builders and Selling Agents, North Andover, Mass.

GEO. S. HARWOOD & SON, 7 Water Street, Boston.

C. J. JONES, Salesman, Mascher Street abv. Lehigh Avenue, Philadelphia.

H. H. HEAP, Treasurer and General Manager, Williamstown, Mass.

Davis & Furber Machine Co., North Andover, Mass.

WOOLEN MACHINERY.

American Soap & Washoline Co.,

Manufacturers of

Textile Soaps

For use in the Manufacture of

Cotton, Linen, Silk, Woolen, Worsted, Hosiery and Flannel Goods, also Soaps for washing Paper Makers' Felts.

We make a specialty of **Washoline**, a powdered soap for use in textile mills, which is meeting with decided success in many departments.

Office and Factory,

140-180 Central Ave., Cohoes, N.Y., U. S. A.

THOS. C. KELLOGG,

SKANEATELES, N. Y.

Dealer in and Grower of

TEASELS.

Clipped and packed to any desired size.

Teasels are grown, cured and packed on own premises.

New York Office, 96 & 98 Reade St.

A. H. KELLOGG, Manager.

Correspondence solicited. Samples free sent by mail upon application. Write for Price List No. 82.

McLAUGHLIN BROS.,

TEASELS,

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Offer the best quality medium sizes, most evenly assorted, at the lowest prices in the market. Satisfaction guaranteed. Business established in 1832.

WM. W. KELLOGG,

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AMERICAN TEASELS

High Grades a specialty.

Sample Orders Solicited.

mounted on a cylinder roller or shaft, on which it can slide. By means of an ingeniously arragned spiral keybed, at the bottom of the key grove, in which a fork is fixed in the emery roller engages, a reciprocal sliding motion is given to the latter as the shaft is revolved. Thus, the motion of the shaft drives the roller, and also gives it a to and fro movement. The continuous grinding roller has a similar reciprocal motion.

Fulling With Hot Soap.

What are the disadvantages of fulling mixed or natural white woolen goods with soap at a temperature of 65 to 70°? This question was asked in one of our German contemporaries, and the following answer is given:

The fulling of woolen goods with hot soap is to be avoided under all circumstances, especially at so high a temperature as stated in the question, for if the degrees of heat given apply to Reaumur's scale, (80°=212°F.,) 70° is only 10° (50° F.) below the boiling point. Supposing, however, that 70° C. (100°=212°F.) are meant, the aspect of things is not changed greatly, for, generally speaking, every artificially-generated heat is to be avoided as much as possible in the fulling process, and among others, the introduction of steam into the bowls of the fulling machine. This extreme measure is to be resorted to, only after every other means has failed,—when the felting capacity of the wool is very small, and the cloth is, nevertheless, to be felted strongly.

It is true that heat promotes the felting of the animal fibres, but this has its limits, and whenever possible, the fuller should be satisfied with the temperature developed by the co-operation of the parts of of the machinery, roller, cylinder, etc., and the blow, pressure, and rubbing of the cloth itself. If the cloth is not forced by suitably setting the fulling mill, this heat will be about from 85 to 90° F., and for this reason the cloth should not be moistened with a still hotter soap solution. A soap solution of such a degree of temperature can quite easily cause an unequal formation of felt, because the cloth when moistened will not at once absorb all the hot solution, thus producing a stronger development of felt at the place where it remains in contact for a time than at the other places which have been left cooler. Such a hot solution is more apt to cause a shrinkage of the cloth, and this differs essentially from a felt. For the mixtures spoken of in the query, there is the additional danger that the colors will bleed one into the other. [The Textile Manufacturer.

New Loom Shuttle.

An ingenious mechanism for threading a loom shuttle at the eye without sucking, has been contrived by S. W. Hamblin, of New Bedford. In this device the shuttle is threaded by means of a flexible hook as quickly as by sucking, and as easily with coarse as with fine yarn.

The tension is self-locking, adjustable, and durable, the adjusting screw being securely locked and held in any desired position. By use of this tension the screw cannot work loose; thus the liability of breaking out the warp is avoided. By the use of an adjustable tension, capable of being set at any degree, it is found that the steaming of filling can be done way with, a more even cloth being the result. The steaming of filling is, of course, an injury to the bobbins, as they will not dry thereafter without warping or springing out of shape.

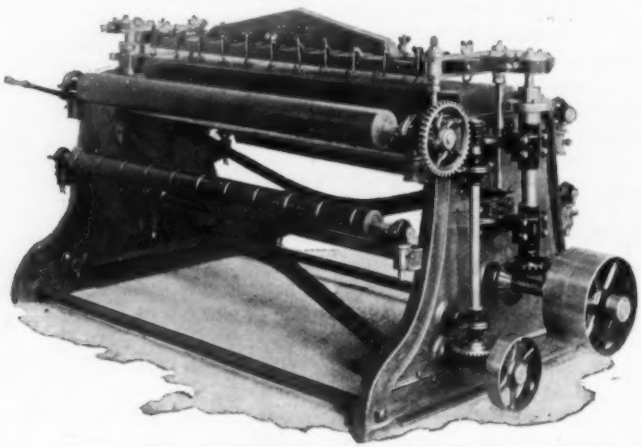
INSINGER & CO., Manufacturers of
LOOMS for RIBBONS, TAPE, BINDING, GORING, SUSPENDER, FRINGES, ETC.
JACQUARD MACHINES for SHAFTS, and HARNESS LOOMS.
Lathes or Buttons, Straight or Circular Shuttles, 2, 3 or 4 banks.
Nos. 15 to 30 E. Canal St., PHILADELPHIA, near 1033 N. Front St.

The Baush Chinchilla Machine.

A superior machine for the production of chinchilla goods of all patterns is herewith illustrated. It is manufactured and patented by the enterprising firm of C. H. Baush & Sons, which is fast becoming one of the leading industries of Holyoke, Mass. As will be seen, it is built specially heavy, and is so braced that it can be run on an ordinary floor without any extra foundation. It even exceeds requirements, being capable of 16 different motions, although it has no extra parts. These machines are now running in many of the best woolen mills, and are reported as giving entire satisfaction.

Briefly described, the machine may be spoken of as follows: "The movable side boards turn about, vertical shafts being secured to lever arms, actuated through toggle links connected by ball and socket joints with the connecting rod operating the stock, and with the levers carrying the side boards, whereby the sideboards are moved inward when the stock is drawn back, and outward when the stock is moved forward, so that the goods are kneaded, worked and turned alternately by the stock in the ordinary way; also by the side board, in the lateral direction.

The appended letters will show what users think of the invention. The first



THE BAUSH CHINCHILLA MACHINE.

Ernest Gessner's Improved, Fulling Mill.

This mill, patented in all countries, embodies important features for working cloth without damage. The sideboards of the fulling trough are movable, and so operated that they act as beaters in a lateral direction, their action being supplementary to, and alternating with, that of the ordinary stock, so that the fabric is worked in two directions, augmenting the uniformity of the fulling and preventing the formation of knots. The machine is especially adapted to goods hard to full, the fulling process being accomplished rapidly and effectively.

given is from Sandberg Bros., Freystadt, i, Schl., (Ger.,) being dated Aug. 18, 1894. It says:

"We are entirely satisfied with the crank fulling mill with movable side boards which we bought from you a short time ago. This mill performs more, and works better than the common hammer fulling mill. Therefore, we may recommend your crank fulling mill to everybody."

A second is from J. G. Knopp's Son, of Helmbrechts, (Bavaria), and is dated September, 1, 1894. Here it is:

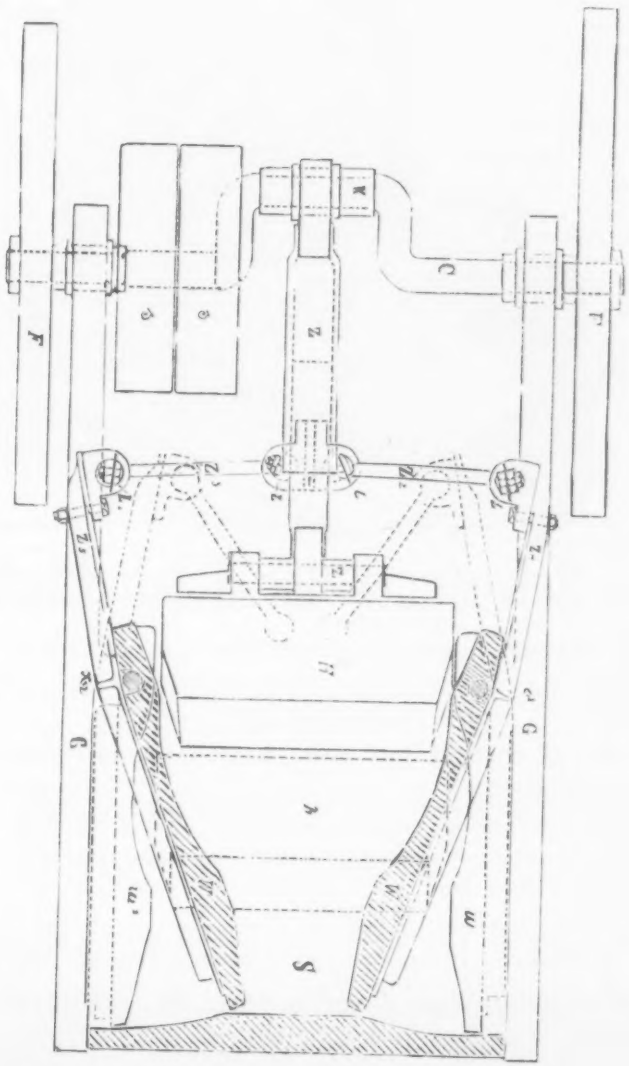
"I am glad to inform you that I am well satisfied with the crank fulling mill with movable sideboards which I bought from you. I ordered specially this fulling mill for goods hard to full as mungo, cheviot, shoddy—wool mixed

with cotton, which goods I could not full entirely to my satisfaction, even by a long and careful proce-s on the common fulling mill. With your new patent fulling mill I can full all these goods in the shortest time, in the most satisfactory manner. The process of fulling is much stronger and quicker, the goods receive a better felt, and the scrapings amount to very little. I think your crank fulling mill has a great future, and will displace all other systems of fulling mills. As proof of my fullest satisfaction I have ordered three more of your crank fulling mills, and to-day I give you the order for a fifth to be built as soon as possible."

The machines are to be built in the United States, and if desired, will be sent for trial on application.

Correspondence is invited by Charles A. Funk, 5136 Viola St., Philadelphia, the American agent of Mr. Ernst Gessner, of Aue. Saxony.

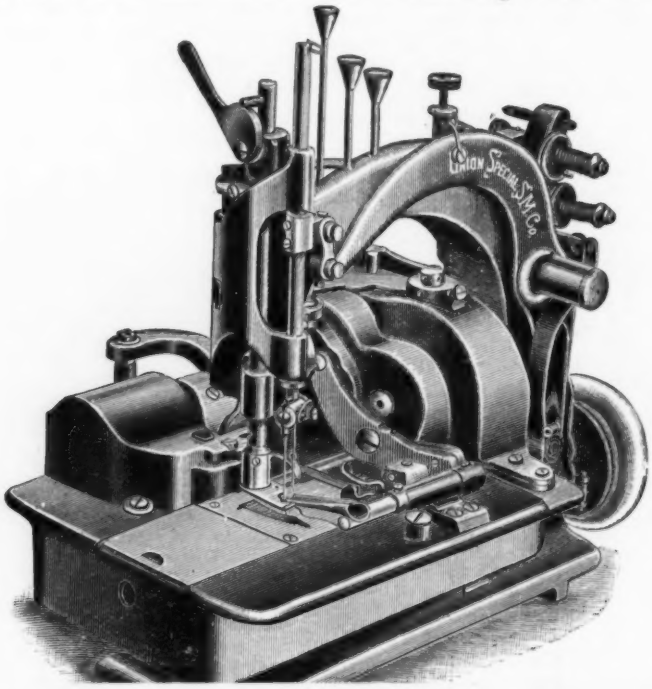
ERNEST GESSNER'S IMPROVED FULLING MILL.



SCOTT & WILLIAMS,

ESTABLISHED 1865.

Builders of all kinds of Knitting Machinery.



New Selvedging Bar Stitch Machine.

FOUR PROCESSES AT ONCE.

Selvedges the Edge, makes and attaches the Trimming and inserts Ribbon at one operation.

RUNS AT SPEED OF 2000 STITCHES PER MINUTE.

The United States Circuit Court for the Eastern District of Pennsylvania has recently issued a decree sustaining our Patents in this machine and on the Trimming made by it, and has granted an injunction against manufacturers in Philadelphia who were using an infringing machine.

The attention of the trade is therefore directed to this decision, as we shall proceed promptly against any others who violate our rights by the manufacture, sale, or use of infringing machine or trimmings.

Patented, United States, Dec. 25, 1888.
Patented, United States, Aug. 20, 1889.
Patented, England, January 1, 1889.
Patented, United States, Sept. 3, 1889.
Patented, United States, Nov. 26, 1889.
Patented, Switzerland, May 17, 1889.

Office: 2077 East Cumberland St., Philadelphia.

SHOWROOMS: 6th and Arch Sts., Philadelphia, Pa

KNITTING DEPARTMENT.

The Knit Goods Situation.

The end of the sixth week of the new year finds stocks very nearly the smallest in the history of the trade. Although orders last fall were large, there are practically no fall goods remaining in jobbers hands. Cheap labor and free wool have been effectually discounted, yet, there is much uncertainty in prices which the currency problem and labor disturbances foster. Still, there is a cheerful undertone in the market, for while staple agricultural products are bringing ruinous prices and manufactured commodities have been reduced greatly in market value, better times are coming although the improvement is very slow.

Some jobbers estimate that their January business is nearly 40 per cent. greater than it was the corresponding month a year ago. Sales are about 25 per cent. larger, which is equivalent to 40 per cent., as values have shrunk from 12 to 15 per cent. within a twelvemonth. Indeed, one of the largest Boston houses reports a business equalling that of January, 1893, which was the largest in its history that month.

Retailers have seldom, if ever before, made a larger profit on knit goods in proportion to their sales than they are making now. Tariff changes have not generally resulted in a direct reduction in prices; instead, qualities have been improved, which, of course, amounts to the same thing. Consequently, when a man buys a cheaper grade of underwear, or hosiery, than he formerly did, it is a question if that class of goods has not been so advanced as to give him the old value received.

Domestic manufacturers are crowding the foreign trade harder than ever, particularly on underwear of the finer grades. The buyer of one of the largest houses catering to the higher trade said a few days ago, "Another season we shall carry nothing but American goods in higher priced underwear. We are satisfied that the foreign trade can no longer successfully compete with domestic manufacturers. We should have put in the goods of a Connecticut concern for spring trade if we could have got them in time. Manufacturers on this side, however, were behind hand, and by the time they were showing samples our foreign orders were in transit or in the custom houses."

Nevertheless, foreign agents are very active; they do not hold the notion of many domestic concerns that the fall campaign is usually begun too early.

Even dealers who do not ordinarilly cater to the cheaper demand report increasing calls for medium goods.

Domestic hosiery manufacturers have not been making as much progress in meeting European manufacturers of medium and fine goods as is true in underwear, although everyone admits the room for successful competition of this sort. Still, late indications show more a tendency to dispute this ground than ever before.

It is a question after all if the "hand to mouth" buying of the last year has been a bad thing for jobbers. When a retailer before said, "put me in a case," he now remarks "a small line of that will do." And there is a difference beyond quantity—the average dealer keeps his bills paid up much more closely. His benefit, is, perhaps, felt more by houses with large trade, in the West, where buying has frequently been too free for the best interests of all concerned. Of course, the smaller the orders, the more numerous must be the side trips of the drummer, and these have caused considerable swelling of expense accounts. Still, one of the larger jobbers says his house is satisfied and

would think several times before exchanging present conditions for those of 1893.

The large retailers report a trade generally characterized as fair. All appear to believe that if trade this month continues as it opened, it will be better than the average February, which is invariably the worst of the year in this line.

Spring trade seems to start just a little later each year. This, doubtless, because the demand for each of the four seasons is much less distinct than it was a dozen years ago. Dealers now find the demand for a long cold winter and a long hot summer comprise the full requirements of a year.

Late advices from Chemnitz state that the prospects for next fall and winter are not promising, although there is yet time for a change that would reverse conditions. Prices are low, owing in large part to the low rates governing raw materials. The South American demand for hosiery is not as large as might be expected.

Progress of the Knit Goods Industry in the Argentine Republic.

The Bureau of American Republics furnishes the following, concerning the cotton manufacturing industry in the Argentine Republic, which is, perhaps, the only one not affected by the census of the past few years. As yet, the cultivation of the cotton plant has received little notice from capitalists, but before many years have passed, greater attention will be given to its development, on account of the large field open for the supply of raw material to the numerous factories established throughout the country. It will be seen that no pains have been spared by the promoters of hosiery mills to place that nacent industry on as firm a footing as possible.

The hosiery concern of R. Monteros & Co., in the Calle Victoria, is known as the San Carlos factory. This industry was founded early in 1891, and occupies an area of 4831 square meters. There is a branch establishment in Belgrano, which is principally used as a dye-works. There is also a large warehouse for the storage of goods in the Calle Rivadavia. This factory turns out vests, socks, and drawers of knitted cotton. There are about 427 machines. A part of these are Branson knitters, turning out daily 600 dozen pairs of elastic for men's socks, and 200 dozen wrist bands for vests. There are also buttonhole machines, and others for sewing wristbands to the vests; knitting machines which turn out 160 meters of textures for women's and children's vests, and several Wrightson machines, which knit 120 to 150 kilos a day. The remaining machinery comprises Branson's automatic knitters for seamless socks, with an output of 600 dozen pairs a day. The factory price of the socks is from $2.50to $4.85 a dozen; vests from $7.80 to $18.00 a dozen. The wages paid vary from $2 to $6 per day. The capital invested in the factory, amounts to about half a million dollars paper. The proprietors are contemplating alterations, to enable them to better meet demands. In comparing wages of operatives, prices of goods, etc., it must be remembered that the dollar of the Argentine Republic is to-day worth only about fifty cents of American money.

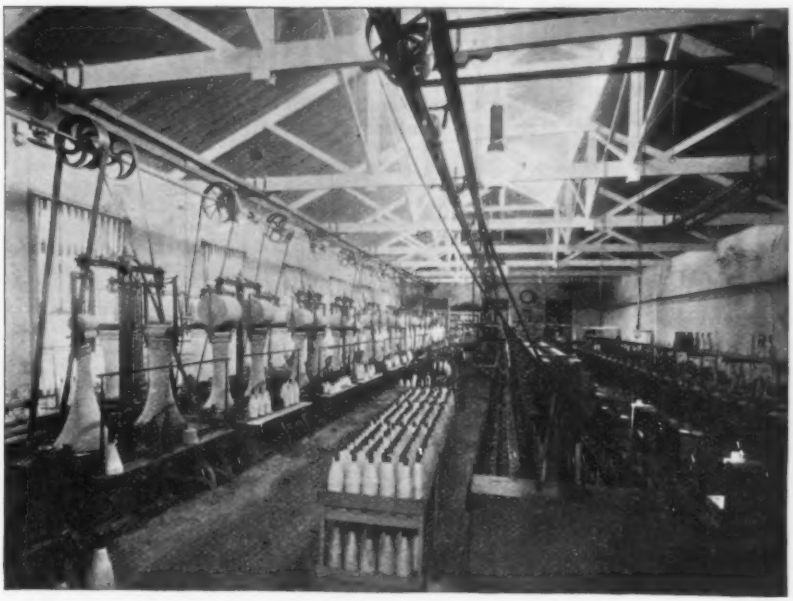
In 1892, Messrs. Joselin Huergo & Co., established a cotton factory in the Calle Venezuela, which possesses four knitting machines of various sizes, all being of the latest invention. The daily consumption of cotton is from 150 to 200 kilos. The daily output is about 100 dozen vests.

The quilt and vest factory of Castagneto & Lastreto, is situated in the Calle Cordoba. The quilt factory was established in 1883, and that for vests in 1892. The first-named department is fitted with the following machinery: a four horse power engine, driving five Singer machines for common quilts; six large, and two small knitting machines; one beater machine, one opening machine, and one carder.

In 1893, Baibiene & Antonini established their hosiery factory in the Calle San Jose, on land having a superficial area of one thousand square meters. The machinery is of North

American manufacture and comprises 11 winding machines, of 40 spindles each; 55 knitting machines for making vests, and one special knitting machine for making the collars; four machines for the manufacture of wristbands and elastics for drawers and vests; two wristband machines, five buttonhole makers, five machines for stitching on buttons, six for crochet and embroidery work, and six for double seams. The stocking department contains 24 frames for women's hose, 26 knitters for the men's socks. The factory price of these goods averages: men's vests, $12 to $40; women's vests, $6 to $30; men's socks, $3.60 to $5, and women's socks, from $2 to $5. The factory uses 250 kilos a day, all of which is imported from Germany, France, and England. The capital represents about $300.000.

Juan Esteban & Co., started a vest factory in the Calle Cangallo, in 1891, having 70 various machines, among them the chain system. The 200 women operatives earn an average of $3 a day.



KNITTING ROOM IN THE FACTORY OF BAIBIENE & ANTONINI, BUENOS AYRES, FULLY EQUIPPED WITH AMERICAN MACHINERY.

ribs of the same, 50 frames for men's socks, seven presses, and 200 machines of various systems for seaming and finishing the goods. The motive power is supplied by a forty horse power engine. The entire building is lighted by electricity. The factory employs from 350 to 400 men and women, who are under an American foreman. Wages average from $1.80 to $3.00 per day, there being some operatives who earn as much as $4.00 daily. The daily output consists of 300 dozen vests, 200 dozen pairs of women's stockings, and 350 pairs of The monthly output consists of 1200 to 15,000 dozen vests, which sell from $10 to $30 per dozen. Mr. Esteban is making preparations for the cultivation of a large area of land for cotton planting, and also intends to extend his factory so as to be able to make vests, stockings, drawers, etc. He is also credited with the intention of establishing a spinning factory in Buenos Ayres.

La Fabrica Algodonera, is the name given to the hosiery factory of Alfredo Rivero, in Calle Cordoba. This establishment was started in 1883, and is at

PAUL SCHLOSSMANN,

Philadelphia, Pa.,

Importer and
Manufacturer of

Hosiery Machinery

AND

Mill Supplies.

All Contracts for Machinery made subject to delivery in mill in working order free from further expense to purchaser.

SPECIALTIES:

Full-Fashioned Machinery for Footing Ribbed Hose
From 8 to 10 sections on various principles.

Full-Fashioned Machinery for Making Complete Hose
From 12 to 18 sections on various principles.

Rib-Frames for making Cuffs, for High-Class Underwear
From 4 to 24 divisions on various principles.

Special Sewing Machines for Seaming Selvedged Fabrics.

Winders on the Latest and Best Systems.

All Supplies for above Machinery kept in stock. For full particulars address,

PAUL SCHLOSSMANN,

S. W. Cor. 6th and Arch Sts.,

PHILADELPHIA, - PA.

present only worked on a small scale. 100 operatives are engaged, the monthly output averaging from 1,800 to 3,000 dozen vests of different kinds, color, and sizes.

In the same year, Enrico Dell' Acqua & Co., opened their hosiery factory in Calle Calleo. This firm has its headquarters in Italy, and a branch in Sao Paulo, Brazil, and Buenos Ayres. The share capital is 1,500,000 lires. 17 machines are now in operation. The weekly output comprises 300 dozen vests and drawers. The yarn is imported from Italy. About 50 hands are employed.

Pedro Azum fitted up in 1893, a miniature mill in Calle Salguero, for the manufacture of cotton, wool, and silk hosiery. It has eight fine knitting machines and four seamers. 600 kilos of yarn are consumed monthly, and the output is 60 dozen articles, which sell from $66 to $120 per dozen. Pedro Azum is also interested in the formation of a company for acquiring all the raw cotton grown in the country.

F. Pachianotti & Co., have a small vest factory in Calle Catamarca, with an output of 100 dozen a day, for which work 100 women are required. There are 80 machines driven by an eight horse power engine.

There is another knitting factory in the Calle Catamarca, belonging to E. Chaillon, founded in 1893, with a capital of $50,000 gold. It has 50 knitting machines, and 60 for other work, giving employment to 100 men and women. The output is about 100 dozen vests of fine quality, daily. Mr. Chaillon formerly had his factory in Paris, but moved it to Buenos Ayres, to secure a better market. He is also growing cotton on a large scale in the Province of Corrientes.

The illustration shows the knitting room in the mill of Baibiene & Antonini, which is doubly interesting from the fact that it is entirely equipped with American machinery. On the left is a row of Crane body machines. On the right is a long row of Brinton, Denny & Co.'s hosiery machines. In the centre are the winders.

The machinery in this knitting mill was entirely set up and put in op ration by two Americans, even to the setting up and starting of the engine; and when they left it, two years later, it was running in perfect order and turning out a high grade of goods.

Fixing Knitting Machines.

THE CIRCULAR RIB BODY MACHINE.

The technical book literature concerning fixing and operating American knitting machinery seems to be very meagre, and in fact, it is only in the columns of the TEXTILE WORLD that the knitter finds much information of the same practical nature which those interested in the spinning and weaving industries have so largely at their command. I have therefore thought that a series of articles on fixing knitting machines would be of interest to readers of your magazine, and it is my idea to take up in such a series the different classes of knitting machinery with which I am familiar, and describe the methods of setting up and fixing the machines, and keeping them in best working order.

In this present article I will take up the circular rib body machine, the general type of machine such as is built by Scott & Williams, Nye & Tredick, Brinton, Denny & Co., Champion Sewing Machine Co., Warren D. Huse, Lewis Jones, W. Stafford & Co., Snyder & Fisher, and may be others which I do not recall. Of course each make of machine has individual characteristics which distinguish it from the others, but I think in a general way my remarks can be applied to most of them, and if there are any points which I have failed to cover, I shall be very glad to hear from any of the readers of the TEXTILE WORLD, who may desire to inquire more specifically into those which I have not made clear, or not touched upon.

We will take the circular rib knitting first. A new eight feed machine just out of the shop will answer our purpose, so we will proceed to set it up, which, with a great many machines, is nothing more than putting the legs under and putting on the bobbin rack, as they are all set up in the shop, and only the leg and bobbin rack taken off before being boxed. Clean it up thoroughly. If the adjuster in the shop was a practical knitter, the machine should start up

without much trouble, providing none of the parts became moved in transit.

We will suppose the machine was properly adjusted and securely packed before leaving the shop, and had good treatment at the hands of expressmen and teamers, and arrived at the mill in perfect condition, the legs and bobbin each put in position, cleaned up, and turned a few courses by hand and everything found to be all right.

The first thing to do, then, will be to see if all the yarn carriers are properly set, and all the feeds are making the same length of stitch. This can be done in two or three ways. A very simple and effective way, is to mark the yarn at a certain distance from the carriers, then turn the machine slowly by hand until the marks on the yarn reach the carriers. If some of the marks touch the carriers when others have not reached them, it shows that the threads whose marks touch the carriers are drawing more yarn than the others. By raising those cams which are drawing the most yarn, by means of a screw placed directly over the drawing or stitch cam in the cam cylinder, so that it draws less yarn, or by lowering the stitch cam that draws the smallest amount of yarn so that they will take more yarn, the irregularity can be adjusted in a very few minutes.

Marking the threads to see if they are all drawing alike should be done a number of times, because unless a knitter has had plenty of experience he will be liable to draw the stitch too long that before was too short, in which case he would be in the same position as before. All experienced knitters can even up the feeds with a very few markings. Nothing looks so badly in ribbed goods as a long stitch every fourth or eighth stitch. The knitter is wholly responsible for this, and not the yarn as many suppose.

The dial stitch should be drawn sufficiently to cast off the stitch perfectly and no more. Raising or lowering the dial effects the elasticity of the goods to a great extent.

We will now suppose we have an even stitich, and the machine turns smoothly and easily. It has been properly oiled and runs all right except it makes holes.

There are a number of causes for holes in ribbed goods, viz: rough needles, too much tension on yarn, too much weight on takeup, dial not properly set, dogs on cylinder and dial not properly set, allowing the dial needle to run too near the cylinder needle. There are conditions on old machines never met with on a new machine.

When a new machine makes holes, attention should be given first to dial adjustment; care taken that the dogs on inside of cylinder and bottom of dial are set so as to permit the dial needles to travel in the center of the cylinder needles; care should also be be taken in having the dogs alike on both sides of the machine, and that the dial runs perfectly free on its stud, to permit the cloth to pass between the dogs without pinching. If the dogs on one side of the machine do all the work of driving the dial, holes in the cloth on that side are sure to follow. Great care must be taken in setting the dial so as not to draw the dial stitch too early, that is, before the cylinder stitch is finished or nearly so. If the dial stitch is drawn too soon, holes will invariably result. Care should also be taken not to draw dial stitch too late, that is after the cylinder stitch is finished, or drop stitches will follow on cylinder needles if dial stitches are drawn much too late.

The carriers should cover the latches on dial needles to prevent their closing before they take the thread or there will be drop stitches.

There is a very fine point in the setting of the dial; it must be adjusted to a nicety; if set too much one way the machine will make holes; set too much the other way, and the machine will make drop stitches.

In a new machine the needles are supposed to all right, but sometimes this is not the case, as a new needle will sometimes cause a hole. Generally these can be detected readily, as they are made at a certain place in the cloth and appear at intervals, always at the same point in the circumference of the fabric.

We presume the head is properly ad-

justed, so will look at the takeup, which we will suppose is of that kind which is driven by a small colon or leather band or belt, and hinged at the back of the machine with a weight, hanging in the front of the takeup. This kind of a takeup always has a steady tension on the cloth. Any trouble with the working of the takeup is caused by improper adjustment of weight. As little weight should be used as possible, just enough to prevent a tendency to bunch up between dial and cylinder. Too much weight will cause holes. Small two feed sleeve machines and toppers for half hose are fixed in the same manner, but being smaller, with less number of feeds, are much easier of adjustment. The modern rib machine admits of an almost endless variety of fancy stitches and ribs. KNITTER.

(To be continued)

Good and Bad Hosiery.

HOW TO MAKE BOTH ON AUTOMATIC MACHINES.

It would seem, at first sight, that it requires little experience to make bad hosiery, but the fact is, there is much time and some talent expended in trying to make a stocking that will beat the other fellow's in worthlessness. Not that anyone wishes to make a bad stocking, but rather one that can under-sell competitors. Any number of excuses for this mode of doing business, are offered.

Many think that the stocking for the millions, must, of necessity, be made cheap or trashy. The truth is, however, that a poor man cannot afford to buy such goods, and, if left to himself to choose, would, in most cases, pay 15 cents for a pair of stockings, instead of taking two pairs for 25 cents. The trouble, if traced, would perhaps be found to exist in a combination between the buyer and the manufacturer. Both are mistaken in what the masses *would* buy if the inferior goods were not pushed; and this is not a mere assertion, because, if closely investigated, the fact can be established that the parties who constantly and persistently make good goods, are making the most money.

On an automatic machine of to-day, it takes no more time to produce a good stocking than a bad one provided (and here is the vital point) the machine is a good one, and kept in first class order by a competent attendant. It is a mistaken idea that any kind of help will do, because the machine is automatic. An intelligent person, if physically able, can do more work with a wheelbarrow than an ignoramus; but if you will employ ignorant, unskilled help, you can succeed in making bad hosiery, and the jobber can sell them so as to retail "two pairs for a quarter." I do not mean by this, that one should have an expert to three or five machines. A person with ordinary intelligence, instructed and watched by a competent knitter, should be able to see that ten automatic knitters do good work with good yarn. An annoyance that occupies much of the attendant's time, is the failure of the splicing or extra heel thread to take hold at the proper time. It is caused by the frictional electricity from the driving belt. This can be avoided by many appliances. Anything will do that breaks the current.

Why not produce a good stocking made from two-ply yarn of long staple, properly finished? Of course, here is where taste and skill come into play. A stocking can be spoiled in the closing of the toes, in the welting of the top, or in the boarding. To close the toes, be sure that the stocking is run on straight across, and in the course of the last full revolution. If the course is not followed, there will be points at each side of the toe, which will not look well. Since writing the above, I have been requested to inspect another new automatic knitter; so, with the thermometer below zero, I went seven miles in a Philadelphia trolley car, and felt repaid for the ride. The machine works with perfect smoothness, and runs at the rate of about 4 1-2 dozen a day. In my next article I will give a description of it, and also try to answer the many inquiries in regard to the looping machine, that I recently stated was capable of toeing 250 dozen stockings a day. GIBBONS FRAME.

(To be continued.)

Knitting Frames of the Fifties.

BY "OLD SUPT."

Continued from January.

The knitting loom or frame invented by G. R. Walker and I. McIntire of Portsmouth, N. H., and patented Feb. 12, 1844, is the first I can find in the records. There was another granted to P. E. Ladrange, of France, Oct. 16, 1844, eight months after the New Hampshire one was granted. This is the one I made mention of in the September number. From the issuing of the first patent, as previously noted, in 1815, there were only five others granted for knitting machines, until the loom in 1844, at a rate of only one patent for every six years, and from this date until the issuing of the Bailey patent, there was quite an increase, as one was granted each year.

The knitting looms which I first saw were made in New Hampshire or Connecticut, and were in use in the Watervliet mills in Cohoes, along with Egberts & Bailey frames. This mill was built by Egberts in 1850, and is occupied at the present time by the Parsons Mfg. Co. This was a very ingenious loom or frame, knitting very rapidly, making a beautiful lock stitch that I always admired, and the shirts and drawers made of that cloth received a name richly deserved, the "Medallion." The name originated from the prize that was awarded it at the Crystal Palace exhibition, which was held in New York two score years ago The cloth for the shirts and drawers which were made up annually for the Calfornia trade, also Baltimore and Philadelphia, by the thousand dozens, was made in two sections, and for the half hose in three. The latter were cut and seamed up, then soles put in them, and women sat and trimmed them afterward, as there were no trimming machines, only the original Howe and Grover & Baker box sewing machines.

These knitting looms had large beams attached to them, as large as any on woolen looms in cloth mills, and styled warps, although no filling was used on these frames. The warps were all made in the mill; there were three machines and six knitting looms. These looms occupied about the same space as a common woolen loom of the present date. The cloth knit on them resembled a loose woven serge, and almost anyone would have taken it for cloth, only a little more elastic when stretched. If the yarn had one or two holes more twist in it than common, the cutter had a hard job of it, for the cloth would roll and twist like an eel out of water, so it had to be carefully handled, and put on a frame with small steel pins with little hooks on them placed a few inches apart, and one dozen thicknesses put on, so a dozen could be cut at once.

When the war of the rebellion broke out, and the navy had to be supplied with the very best indigo all wool shirts and drawers, they were made on these frames, which were kept running day and night, for the first goverment contract was awarded to C. H. Adams, owner of the Watervliet mills, Cohoes, receiving $20 per doz. for a very large amount. The second goverment contract Mr. Adams also received, at $24 per doz. although he was not the lowest bidder, but as I understood it the one that received the contract could not or did not furnish the required bonds. When Mr. Adams leased the building, in 1862, to Alden, Frink & Weston, he had to transfer this contract to them They also had large contracts for army shirts and drawers, also all wool socks.

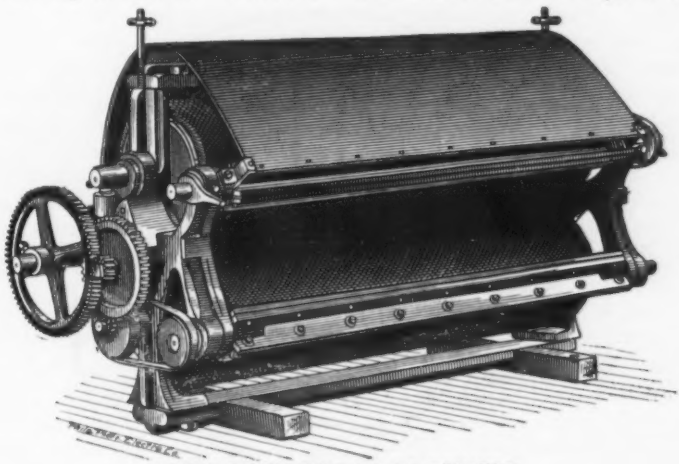
This company failed for nearly a million dollars in 1866, and the machinery was sold to A. J. Root for $42,000, and in 1867 the mill was occupied by J. H. Parsons & Co., who moved into it from the old Miller factory, that was formerly run by F. Bailey and F. Fowler, and for some reason or other they did not use these looms or frames.

In these years of the fifties, small as the production of knit goods was, the mills invariably would suspend operations almost yearly from thirty to ninety days, on account of the surplus stock on hand, and the cry was then, as as it often is at the present day, "Overproduction," when there is no such thing. In 1857 they were all stopped. That was the year of the panic.

(To be continued.)

A Knit Goods Brusher.

A brusher specially designed for knit goods and manufactured by Lewis Jones, of Bristol, Pa,, is herewith presented. As will be seen by the appended cut, both sides of the fabric are brushed at one operation, consequently no arrangement for returning work to the feeding side is necessary. The fabric falls into any suitable receptacle put on the floor. Rapidly revolving sweeps compel the goods to leave the machine without catching in the brush rolls. The feed rolls are close to the brushes, which is of advantage in brushing short length goods. Oil is kept from the work by means of a special device. We are informed that one boy can attend three machines on shirts and long lengths, as they come from the knitters. Much money has been spent in experimenting with card clothing, in the effort to obtain the most suitable quality for knit goods, something that will raise a big nap without cutting or perforating the work, and is at the same time durable. A perspective buyer, while looking at a run from the machine, remarked, "It makes more nap than I care for." The examination of one machine, which has been running 4½ months, shows very slight traces of deterioration in the card clothing.



LEWIS JONES' KNIT GOODS BRUSHER.

Paul Schlossmann.

We beg to call attention to the advertisement of Paul Schlossmann, of Philadelphia, which appears on page 56 of this issue. As to the extent and nature of his business, we quote the following letter, which appeared in fac simile in the January issue of the "Textile Record":

BROWN BROS. & ABERLE CO., LIMITED.
FINE RIBBED HOSE.
MILLS: Palethorp and Huntingdon Streets.

PHILADELPHIA, Dec., 12, 1894.

MR. PAUL SCHLOSSMAN.
724-728 Cherry St., Phila., Pa.

Dear Sir:

Complying with your request, we beg to state that according to our cash book, we have paid to you from Jan. 1st, 1894, until to-day, the sum of sixty-three thousand, eight hundred and fifty-one dollars and eighty-eight cents ($63,851.88) for hosiery machinery delivered to us.

Further orders for machinery placed with you during that time to the extent of fifteen thousand dollars ($15,000.00) have still to be filled by you.

Your claims as to production and delivery, as well as all your other statements made to us, have in every instance been verified by facts, during the four (4) years we have been buying of you.

Yours truly,
BROWN BROS. & ABERLE CO.
(Moore.)

You may use this letter.
B. B. & A. Co.
(M.)

—CONNECTICUT, Stonington. The American Velvet Co. have purchased 6 new looms of German manufacture, and are placing them in their mill.

—*PENNSYLVANIA, Columbia. It is reported that an addition will be built to the Ashley & Bailey silk mill at this place. The new structure will be 150x200 feet in size.

POWER DEPARTMENT.

O. R. YOUNG, M. E., Editor.

Fly Wheel Accidents.

January added two to the already large list of fly wheel accidents. One in Pennsylvania, and the other at Boston, Mass. The latter, perhaps the most dangerous, for the reason that it occurred in the large factory of Page Bros., which was filled at the time with employees, whose escape from destruction was simply miraculous, only one person being injured to the extent of requiring hospital attendance.

The wheel was eight feet in diameter, with what is known as a light rim, it weighing 1600 pounds, complete. The engine was running at 143 revolutions per minute, or two less than the customary speed for that size engine of that make.

The engineer was sitting in his fire-room in the basement below the engine, when its increasing speed attracted his attention. He found himself unable to reach the throttle valve, and stopped the flying machine by closing the valve at the boilers. Before this could be accomplished, the wheel had burst into a hundred fragments, knocking one door entirely to pieces, carrying an elevator door across the room, tearing up the wheel pit brick work, crashing through the upper floors and making kindling wood of the wood work all about the room.

The damage to the building is estimated at about $1500, and all machinery remained idle for some days.

The cause of the accident was at first a mystery, the regulator being one of

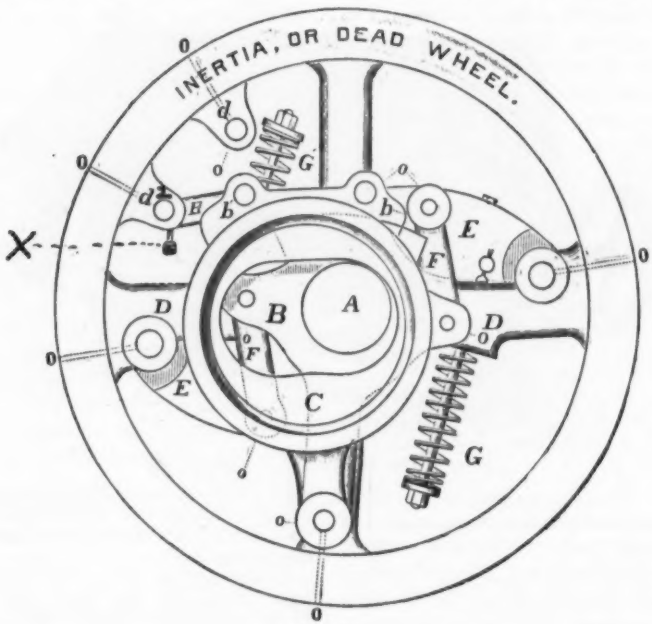
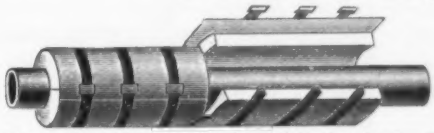


FIG. 1.

AT A TEST of Steam Pipe Covering bought in open market by the **STATE COLLEGE OF PENN'A,**

For the purpose of conducting a condensation test



Our Coverings Gave

20 per cent. better results than Johns' Asbestos Sponge.
20 " " " " " Magnesia Sectional Covering.
27 " " " " " Carey's So called Asbestos.
50 " " " " " Manville Wool Felt. Covering

We Offer it at Prices to suit the Times.

AGENTS WANTED.

NEW YORK FIRE PROOF COVERING CO., 128 Liberty Street, NEW YORK

the best known on the market, and having one special feature, that any great accelleration of speed will so centre its eccentric movement on the shaft, that it will not open the valves or admit steam to the cylinder.

The fact that the engine slacked up noticeably before starting to race, rather added to the mystery, until the cause of the runaway was ascertained. A glance at the following cut, Fig. 1, will show just how the accident occurred.

It will be seen that the link H is connected with the wheel rim at d, by a pin 2 held in place by the set screw X. This set screw becoming loosened, though set nearly 1-8 of an inch into the pin, allowed the pin to work out, releasing the link and breaking the connection between the governor wheel rim and the eccentric movement. The fact that the engine first slacked up, shows that when the pin dropped out, the governor eccentric was in such a position that it closed the valves, cutting off the steam from the cylinder; the inertia of the wheel, however, threw the valves wide open, with the disastrous results.

This accident, coming as it does so soon after the famous Nashua Mill break, which was also caused by the dropping of a pin from a regulator attachment, shows the necessity of having some device placed on an engine, but entirely separate from the governor, which, in case anything happens that renders the governor inoperative for any reason, will stop the engine automatically.

Both of the above mentioned governors were of standard makes and would, under ordinary circumstances, have held the engine in full control; but this only goes to show that the most reliable of engine attachments are liable to get out of order, and that some safety device should be connected which will act as a safeguard, protecting life and property.

It has been the boast of many engine builders, that the governor they construct is so perfect that the engine *cannot* run away; but the infallable piece of machinery has not been constructed yet, and so long as reinforcing or extra safeguards may be had for reasonable prices, there is no excuse for the firm who neglects to apply them.

The loss occasioned by any of the prominent drive wheel breaks since 1890, such as the Amoskeag, Brooklyn, Nashua, Boston or Lynn, would have provided safety attachments for every engine within their respective state limits. The argument that our individual engine drive wheel will not give way, is a very uncertain one, for any of the above factories would have been willing to bring forward and endorse just such a one an hour before the break occurred, and yet the smash happened, buildings were wrecked, and in some cases lives were lost.

Dangers of Uninspected Power Plants.

STATE INSPECTOR HAWLEY'S REPORT.

The report of Thomas Hawley, M. E., state inspector of boilers, is of the most importance to the public at large. He says:

"My experience of the past year confirms my opinion that uninsured boilers are, as a rule, not sufficiently inspected, nor are they properly cared for. It is not an uncommon experience to find no one about a steam plant who can tell anything whatever of the condition of the boiler. Leaks are made the standard of inspection by concerns inspecting their own boilers; the absence of leaks is held as evidence a boiler is safe, and owners appear satisfied to have their boiler continued in service so long as it doesn't leak. They do not take into consideration the pressure at which the boiler is run, its age and how much it has deteriorated, and whether it is safe or not is a matter about which the owners have very little knowledge."

Mr. Hawley states that many owners are not disposed to allow an internal inspection of their boiler, and the law only gives the inspector power to look at the outside. This is radically wrong, for if boilers need inspecting, of which there is no doubt, then they should be *inspected*. Looking them over from the outside may discover some defects, but they are only a very small part of what would be found by an internal inspection. This is shown by the few instances where owners allowed Mr. Hawley to inspect internally, for during these, five boilers were found unfit for use. Two of these cases the owners removed the boilers, but in three no attention was paid to the matter, the boilers continuing to run a menace to life and property. Two of these were found in a hotel and one reported as being forty years old. It would be interesting to know if these owners are not liable to prosecution, and should an explosion occur, attended with loss of life, why are not those owners guilty of murder? By all means give the state inspector a right to inspect.

Mr. Hawley finds that school house boilers do not receive proper attention, many of the janitors knowing nothing of the safe management of a boiler. The general neglect is ascribed to the prevailing opinion that low pressure boilers are not dangerous. Twenty-five pounds may be considered low pressure on a boiler, but the explosion of a boiler, even under this pressure, would do an immense amount of damage. Then, too, suppose the janitor leaves his boiler under steam with the fire in good condition, and a demand for steam great enough to keep down the pressure. If the day turns out warmer than he expected, the closing of valves rapidly increases the boiler pressure. If the safty valve is in working order the steam does not reach the danger point, but should it be stuck or over-weighted, then it becomes highly dangerous, and yet Mr. Hawley says such conditions exist in many school houses and public buildings to-day.

Describing one school he visited, he says, "The ashes lay where the last fire had left them, the boiler shell was covered with soot wet with moisture, the back connection was so filled with soot as to reach the bottom of the boiler shell, the dry sheet was covered with soot which had caked from the leakage of the carelessly packed hand hole plate, which was also found to have caused serious corrosion in this part of the boiler."

Speaking of second hand boilers. The owners will sell them probably for old junk, but the purchasers having less regard for safty, sell them for use again. There are men who make a regular business of filling in the bad places with red lead, and painting them over, or otherwise making them appear good, thus selling them to unsuspecting purchasers. Every boiler or machinery dealer understands the extent of this

evil, and it certainly seems as if some legislation were necessary concerning it. It might possibly be covered in a general inspection law.

Commenting upon the increasing number of failures of large engine fly wheels, Mr. Hawley says, "A very large number of engines are provided with no device whatever for controlling the speed of the engine, in the event of the governor belt breaking, or any accident of like nature. When an engine is suddenly relieved of its load, as may happen from various causes, such as breaking of a main belt, the tendency of the engine is to increase its speed, and, if not immediately controlled by the governor, the speed will quickly increase to such an extent, that the fly wheel will burst from centrifugal force, hurling immense pieces of iron in all directions. Such may occur by the failure of a governor to work, allowing the engine to take full head of steam with the same result.

"To prevent dangerous racing, engines may be provided with devices that will stop the engine in case the governor should fail, or in some cases the governor may be set to prevent the admission of steam when the engine is running at a high speed. The cost of these arrangements is very little in the case of the automatic stop, and many engines now built are fitted with them.

"In many cases I find the engineer is totally ignorant of the purpose of the device, and in other places he does not use the safety device provided. Some of the largest mills are being run with the governor in such a condition that the failure of the governor balls to revolve would inevitably be followed by the explosion of the wheel. The engineers, in many of these places, understood the office of the governor and the purpose of the safety device provided upon it, yet did not take the few seconds necessary to put in operation at starting. In several places the governor was found with its safety attachment inoperative, and the engineer asked to put it in position where it would be operative if called upon to perform its office. This was done without hesitation, but immediately after it would be undone, and the device thrown back or the pin inserted again, which would make the governor no governor at all in case of emergency. Neglect of this kind has been responsible for many fatal accidents from exploding fly wheels, in this and other states, and it is neglect that is nothing short of criminal.

"Safety valves are required on boilers, and there is just as much need for providing a safety device upon engine governors, and some way of ascertaining whether the engineer understands concerning them, and when put upon an engine they should be always ready for use."

Machine Shop Reminiscences.

HOW WE LEARNED THE TRADE.

Several years ago the powers governing the destiny, to a certain extent, of a more or less promising youth, decided that the machine world should receive a shining light (?) and the writer was given a place in a well-known machine shop in the vicinity of Boston, where in addition to general machine work, many locomotives were run for repairs.

We started in with a brand new pair of overalls and jumper, and a pair of rusty wing dividers, bought at our grocery store, and polished very deep with grind stone dust taken from the village blacksmith shop; these with a brass bound two foot rule furnished our total equipment.

As far as knowledge went we flattered ourselves that it was as extensive as our kit of tools, and it was, just about, for had we not taken care of an engine and boiler in our saw mill for a week at a time? To be sure, I was a little mixed on expansion of steam, but I fed that boiler with water and saw dust, two essential qualities with that particular institution.

On arriving at the shop, I was given a place at a bench, a hammer was placed in my hand, and I was told to pound some stop motion fingers.

Mr. B——, as I will call our foreman, a brother of one of the owers, was a large raw-boned individual, who might have made a success as a farmer, but has long since proved a failure at his particular trade, was strong and quick motioned, two qualifications, I have since found out, a first-class machinist can get along without, for in my 25 years machine shop experience, I have noticed a man so constituted was continually making some blunder which took twice the original time to remedy, while the man who "makes haste slowly" accomplishes far more in a day or a year.

It was an easy matter to satisfy my foreman in getting those fingers straight, but it being my first job, I took great pains to do it well. In an hour or so, however, Mr. B. came along, and complained I was taking too much time to do the work, showed me how to work much faster, but at the expense of the quality of the work, which was almost a failure. I would like to say right here that any instruction which counsels speed at the sacrifice of excellence is wrong, and this was certainly a bad example to set a boy just learning a trade. Years have proved to me that any one who expects to win success in any trade in this world must do his work tidy and well. Keep this uppermost in your mind, speed will come with practice later. The would-be smart, active boy, who looks only to quantity, will always be found on lower grades of work, for which smaller wages are paid, while his comrades who proves himself capable of turning out finely finished work, will be given the better class of work, which commands much higher prices.

After straightening these fingers, I was next set to drilling them for a small piece of wire to run through. In those days, twist drills were unknown, and we used flat pieces of steel drawn out round, at one end somewhat smaller than the body of the drill, or small enough to pass through the hole to be drilled, the corners were then cut off and our drill was ready to be ground. Now it looks quite easy to grind a drill, and it is when one knows how, but the trouble lies in the fact, that in grinding the corners so they are an easy fit for the hole you wish to finish, you find on using the drill, the hole made is larger than the pattern. The new machinist generally meets this in his first attempt at grinding, and it is the same old trouble that afflicted that very drill of mine so many years ago.

Mr. B. gave me one of these drills and told me to bring the box of fingers to a speed lathe. To tell the truth I was just a little in doubt as to where he wanted me to go, but he proceeded across the shop and I followed him, finding my first speed lathe, which we will speak of more in full later. I was told to put the drill in the *collet*, that is an arrangement for holding it in the lathe and fasten it with a set screw; very few shops to-day hold drills in this primitive way, but have them made with a taper to fit a taper hole in the collet.

After seeing him grind the drill, I made a mental note the next time it required grinding, I would do it myself. In trying it I found myself badly mixed up, for grind it as I would it would never cut smaller than itself. After wrestling with the problem some time, I learned a point which has been very valuable to me in the matter of grinding a flat drill.

When you have drilled a hole to the depth of the lips of your drill stop your lathe with some pressure on the handle, note the position of the drill, say the top side, now draw back the tail spindle and look at the chip your drill is taking; if it is right, that is as to size, you will see both sides look even and alike. When ground wrong, that is, when it cuts larger than itself, you will find that

one lip of the drill cuts before the other; now having noted as above, the position of your drills, stop, see which is the short side, and grind until the sides are even, or both chips show alike.

Always try your drills on the same kind of iron as you are going to use them on, cast for cast iron, wrought iron and oil for wrought iron. I mention oil as this is very important, for oil is a good material to make a reamer cut considerable smaller, and on cast iron you can easily reduce with the same, from an easy fit to a tight drive.

Bravery of Engineers.

There is something in the occupation of an engineer, which leads him to face danger with a coolness unthought of in any other trade, unless indeed war may be called a trade. This is often shown in the life of the locomotive or marine engineer, more especially, perhaps, on account of the greater or more frequent opportunities, at the same time instances where the stationary engineer has faced death to save life or property are by no means rare.

As in his daily run the locomotive engineer has thousands of lives in his keeping, so also, do the engineers in the great establishments and factories, and the daily work of these men, somehow, schools them to perform heroic deeds regardless of danger, and when an emergency arises, he, like his brother locomotive engineer, is always found at his post as in the case of Engineer Bunker, who was killed at the throttles in the great Amoskeag break.

A recent illustration of this was seen a few weeks since in a Pennsylvania town, which is graphically related by an eye witness as follows: The engine house of the Stevens Colliery, in West Pittston, Pa., caught fire at midnight, Dec. 16th, and was discovered by Engineer Thomas Loyd. He realized that the machinery he had charge of would be rendered useless, which meant, that the fans supplying the air current would stop, and forty men working in the mine would be suffocated by gas or killed by explosion.

Loyd rang the signal bell notifying those in the mine that something was wrong, but it was sometime before they answered on account of being at work some distance from the foot of the shaft. Finally, one of them shouted through the telephone wanting to know what was the matter. Loyd told him and he gave the alarm, meanwhile, the flames had spread rapidly and the engine room was full of stifling smoke.

Pulling his cap over his face, he waited anxiously for the signal to hoist, and while waiting blew the whistle which would call the fire companies to the scene.

There was no means of escape from the mine, except by the carriage, and the flames were now all around him. His clothes were scorching and he could not see for smoke. At last the signal came, three strokes on the bell, and with a glad heart he pulled the lever and the carriage mounted swiftly 800 feet to the surface.

As it stopped at the surface there came another signal to descend, the men were not all up yet. With the flames biting into his flesh, he sent the carriage down again; once more he hoists and still again came the signal that the men were not all up; with his senses reeling with pain and partial suffocation he again lowered the carriage, and for the third time waited.

The bell sounded this time "all right"; with a muttered "thank God" Loyd dashed from the door and outside, a crowd had collected, a blanket thrown around him extinguished his clothes which were on fire, then he fainted. He was carried home and his wounds dressed, there was hardly a place on his body which was not scorched and in several places the flames had eaten into the flesh; the physicians cannot say whether he will recover or not, but should he do so he will carry the scars won by his bravery to his grave.

One of the great New York dailies commenting upon the brave act, says editorially, "His name should be placed high upon the roll of honor, for while we have many glowing examples of heroism and self-sacrifice there was never a brighter one than this."

The Coming Lathe.

The coming lathe will be expected to do nearly if not twice the amount of work of the lathe now in use. This may seem a large statement to the ordinary machinist, but to the progressive one it is already a recognized fact, and he is, if wise, shaping his course to take advantage of the theory.

Twice the production, means the lowering of price for all perfected work, and when competition comes close, it also means that goods manufactured in shops with improved machinery, can be sold at a lower price than those in other shops cost, and yet have a margin of profit for the builder.

The very people who howled in derision at the idea of speeding up lathes to do double work, a few years ago, are the ones to-day who are complaining that some concerns are selling machinery for less than cost. As a matter of fact, they are doing nothing of the kind, they are simply turning out double the work in some lines, at almost the same cost.

The great trouble in the past with lathe tools has been, that to run much above a certain speed would burn the steel, and practice held that speed down to from thirty-five to forty feet per minute on soft castings, to ten or fifteen, sometimes even less, according to the iron and chip.

Patent process work in steel tool-making, has now advanced to a point where sixty to seventy feet per minute can be run without injuring the tool in the least. Just here comes the necessity for new lathes. While the old lathe could easily hold the tool up to its work, this increased speed overtaxes the frame strength to a certain extent, thus necessitating heavier frames. To be sure, some of the present styles of frames are strong enough for considerably greater speed than they are now run at, but it is well to remember that speed will never be any less than it is at the present time, and will probably increase, so, that when buying, it will be well to make due allowance for this fact.

When we mention the speed of sixty to seventy feet, of course it doesn't mean on all classes of work, but on the same grades as were formerly considered good speed at from thirty to forty. While the other grades, of course, reduce in speed in the same proportions.

The advantages of this new feature will be felt in nearly every branch of business, especially so in engine lines. Several firms are reorganizing their plants to meet this changed condition, while their shorter-sighted competitors are still plodding away at the same old stage coach speed. It is safe to say that within a few years, the latter will awake to the fact that even machine shop practice has made a stride ahead, even though they may have been asleep during the change.

A Long Distance Electrical Power Transmission.

The Pelzer Manufacturing Company, of Pelzer, S. C., has contracted with the General Electric Company for a three-phase electric transmission plant that will be exceptionally large and interesting. At the generating station, three miles from the cotton mills owned by the company, there will be three slow speed generators of 750 kilowatts each, directly coupled to water wheels. These dynamos will generate current at a potential of 3300 volts, and the current will be fed directly to the transmission wires at this pressure. The transmission line will consist of eighteen No. 00 wires, this size having been selected in preference to larger wire, to reduce the line induction as much as possible, under the existing conditions. At one mill will be located a 400 horse power synchronous motor, receiving current directly from the wires. There will be, in addition, more than twenty induction motors in various rooms. Of these, fourteen will be 110-horse power motors, and the others will be of various sizes, from 5 to 75 horse power. In a sub-station will be located nine 160 kilowatt transformers for the motors and for 1200 incandescent lights for the mills. Two electrically operated blowers, of three horse power each, will be used for cooling the transformers.

COLORS AND DYEING.

Experimental Dye Sheet Recipes for January.

A Sample Color Sheet is issued each month from the TEXTILE WORLD Laboratory, containing Samples of stock, yarn, fabrics etc., which have been dyed in our laboratory according to the recipes given in the TEXTILE WORLD. We show the latest colors and methods from month to month. The extra cost of the Dyed Sample Sheets is $1.00 per year. Samples from the following recipes are shown in the January sample sheet. The February sample sheet will be published later in the month.

No. 1.

Brown on Woolen Yarn.

Dyed with Sulfamine Brown Paste, patented; C. Bischoff & Co., 80 Front St., New York.

(For 100 lbs. of yarn.)

Prepare a bath containing,

4% Sulphuric Acid,
10% Glauber's Salt,
2% Sulfamine Brown (paste).

Enter yarn at 120° F., give 3 turns, raise gradually to a boil, boil one hour. Lift, wash and dry.

No. 2.

Brown on Woolen Yarn.

Dyed with Sulfamine Brown Paste, patented; C. Bischoff & Co., 80 Front St., New York.

(For 100 lbs. of yarn.)

Prepare a bath containing,

4% Sulphuric Acid,
10% Glauber's Salt,
1% Sulfamine Brown (paste).

Dye out as in recipe No. 1; when bath is exhausted, lift yarn, cool the bath down to 158° F., re-enter yarn and boil one half hour. Then lift, wash and dry.

No. 3.

Brown on Woolen Yarn.

Dyed with Sulfamine Brown Paste, patented, and Chrome Orange; C. Bischoff and Co., 80 Front St., New York.

(For 100 lbs. of yarn.)

Prepare a mordanting bath containing,

2 % Bichromate of Potash,
1½% Oxalic Acid.

Boil one hour, lift and wash. Then enter yarn in a fresh bath containing,

2% Sulfamine Brown (paste),
1/8% Chrome Orange,
1% Acetic Acid.

Enter yarn at 120° F., raise temperature slowly to a boil, boil until bath is exhausted. Then lift, wash and dry.

No. 4.

Blue on Woolen Yarn.

Dyed with New Wool Blue; Read Holliday & Sons, limited, 7 Platt St., New York.

(For 100 lbs. of yarn.)

Prepare a bath containing,

4% Sulphuric Acid,
10% Glauber's Salt,
1% New Wool Blue.

Enter yarn at 140° F., give 3 turns, raise temperature to a boil, boil one hour. Lift, wash and dry.

No. 5.

Blue on Woolen Yarn.

Dyed with New Wool Blue; Read Holliday and Sons, limited, 7 Platt St., New York.

(For 100 lbs. of yarn.)

Prepare a bath containing,

4% Sulphuric Acid,
10% Glauber's Salt,
2% New Wool Blue.

Dye out as in recipe No. 4.

No. 6.

Black on Woolen Yarn.

Dyed with Azo Acid Black B; Schulze-Berge, Koechl & Co., 79 Murray St., New York.

(For 100 lbs. of yarn.)

Prepare a bath containing,

4% Sulphuric Acid,
10% Glauber's Salt,
5% Azo Acid Black B.

Enter yarn at 130° F., raise temperature slowly to a boil, boil one hour. Lift, wash and dry.

No. 7.

Old Gold on Raw Cotton.

Dyed with Old Gold; Alex P. Mende & Co., 14 Water St., New York.

(For 100 lbs. of loose cotton.)

Prepare a bath containing,

10% Old Gold.

Enter cotton at 160° F., raise temperature to boil, and dye one hour at boil.

The dyestuff must be dissolved in the bath at boil.

No. 8.

Old Gold on Raw Cotton.

Dyed with Old Gold; Alex P. Mende & Co., 14 Water St., New York.

(For 100 lbs. of loose cotton.)

Prepare a bath containing,

15% Old Gold.

Dye out as recipe No. 7.

No. 9.

Blue on Raw Cotton.

Dyed with Cotton Blue 201; W. W. Hanna, 50-52 North Front St., Philadelphia, Pa.

(For 100 lbs. of loose cotton.)

Prepare a bath containing,

1½% Fankhausine,
10 % Common Salt,
2 % Cotton Blue 201.

Enter yarn at 150° F., pole well, raise temperature to a boil, boil one hour. Fork out, wash and dry.

No. 10.

Yellow on Raw Cotton.

Dyed with Yellow 416; W. W. Hanna, 50-52 North Front St., Philadelphia, Pa.

(For 100 lbs. of raw cotton.)

Prepare a bath containing,

1½% Fankhausine,
10 % Common Salt,
2 % Yellow 416.

Dye out as in recipe No. 10.

No. 11.

Light Blue on Velveteen

Dyed with Chicago Blue 6B; New York & Boston Dyewood Co., 55 Beekman St., New York.

(For 100 lbs. of velveteen.)

Prepare a bath containing,

2% Fankhausine,
20% Glauber's Salt,
3% Soda,
$\frac{1}{2}$% Chicago Blue 6B.

Enter velveteen at 140° F., run four ends, raise temperature gradually to a boil, boil one hour. Lift, wash and dry.

No. 12.

Heliotrope on Velveteen.

Dyed with Heliotrope BB; New York & Boston Dyewood Co., 55 Beekman St., New York.

(For 100 lbs. of velveteen.)

Prepare a bath containing,

2% Fankhausine,
20% Glauber's Salt,
3% Soda,
1% Heliotrope BB.

Dye out as in recipe No. 11.

Roundabout Notes.

For the Textile World.

DYEING, PRINTING, BLEACHING AND FINISHING.

To fix the direct dyes upon cotton perfectly fast to washing, is one of the problems as yet not entirely solved. Although partial evolution has been attained by employing diazotised dyes, which also give a perceptible increase in the intensity of the color, the number of these is nothing like sufficient to furnish the necessary variety of shade, and the method is practically confined to red, blue, brown, black and blue black.

* * *

Previous mordanting is too costly, although with a few direct dyes, such as diamine fast red, a mordanting with chrome can be adopted and a greater fastness to washing thereby secured, but deep colors run almost as much as if the chrome had not been used. The first step in the right direction, namely, towards subsequent treatment of the dyed material with metallic salts, is shown in a patent of Bayer, in which the use of copper, zinc, or nickel salts is claimed for certain dyes obtained from diamido diphenol ethers; take for example benzo azurine G and 3 G, heliotrope etc. A greater advance was made, says Kertess, when Meister Lucius & Brüning patented in England their process for feeding with chrome salts a very

considerable number of direct dyes. Basic chromic chloride was particularly recommended. Cassellas have recommended the use of chromic fluroide for diamine fast red since Jannary, 1891, and more recently for diamine bronze G as well.

***

The following processes are in use with copper sulphate. The goods are treated for 15-30 minutes at the boil, or 170° F., with three to five per cent. of their weight of sulphate of copper. The effect of this is here given for certain dyes:

1. Diamine brilliant blue G. The fastness to washing is decidedly improved and the fastness to light very much.

2. Diamine deep blacks S S & O O (Cassella.) Great fastness to milling and washing results, but the black becomes brownish.

3. Diamine browns M & B. Very fast to light, M in dark shades particularly, but B both light and dark. A still better result follows treatment with equal parts bichromate and copper sulphate.

4. Diamine orange B. Made much faster, but takes a brownish hue.

5. Diamine brown 3 G. As No. 4.

6. Diamine bronze G. The shade becomes browner, but the fastness to light and washing is much increased.

7. Diamine Yellow N. The shade becomes duller and more orange, but the fastness is greatly improved. By miling the above dyes a great variety of shades can be got, especially yellowish brown, brown, and dark brown.

***

Burckhardt has been surveying the land for a good one dye black for hosiery purposes, and has found it barren from Dan to Beersheba. Black stockings at present are almost the only wear in Germany. The only other color much used is yellow, bottomed with cutch, and topped with direct dyes. Nevertheless, black shows a tendency to preponderate even still more than it does at present. Hence, the present object is to find cheap substitutes for the extremely fast, but yet expensive diamine blacks.

The Columbia black o 1 B. A. G., and the diamine deep black O O, and Oxydiamine black N of Casella & Co., have been proposed. They dye in one bath, but the shade requires topping with methylene blue. They are, besides, deficient in fastness, compared with diamine black. The first requisite for stockings, is that the color should be fast to washing, and no single bath process yet devised will secure this. Burckhardt has observed that stockings so dyed give a colored water every time they are washed, and the fastness to light is as low or lower. If A 1 goods are not in question, here B recommends logwood black. He thinks that the reckless use of cheap blacks is doing much harm to the industry he represents.

***

Dinctrosoresorcin is sent out under various names by different makers; dark green, it is called by Bayer, chlorin, by Durand Huguenin, Russian green, by Leonhardt, and resorcine green by Fischesser. It gives a beautiful dark green on iron mordanted fabrics, but it has hitherto almost exclusively been employed by the cotton dyers. The ordinary method for wool was to boil with iron sulphate and oxalic acid for one hour, but the shades given compared poorly with the shades obtained on cotton in strength and richness. Now, however, Fischesser has found that the cotton method succeeds perfectly with wool. Take, for instance 100 pounds of wool and mordant at the boil, with four pounds of iron sulphate and two and a half pounds of oxalic acid, wring, and give a few turns in a clear lime bath. Then rinse well and dye in a fresh bath with four pounds resorcine green, (Fischesser), one pound acetic acid, boiling for one hour. This will give a shade equal to a four per cent. bath in the old way, and with every advantage as regards fastness to light.

***

The claims of lactic acid are finding

acknowledgement in France L' Industries Textile records that it is gradually usurping the place of the acids ordinarily employed with bichromate to facilitate the deposition of oxide of chrome on the fibre. Not only is the action of lactic acid more efficacious in this way than that of sulphuric or oxalic, but the subsequent dyeing is easier. If the price of the product synthetically produced by Avery can be lowered, our contemporary thinks there is a big future before it.

* * *

Three French engineers have hit upon the idea of a pierced roller for calico printing, that is to say, the design is in fret-work or the white parts are represented by extreme hollows. Whether the plan has been tried is uncertain, but it seems simple, and the designs should be clear and strongly defined.

New Method of Securing a Uniform Temperature in Dye Baths.

In order to insure a more uniform temperature in dye baths, the circular form has lately been resorted to abroad, there being an outer casing, provided with holes, which acts as a support for the dye bath and screens the Bunsen burners from draughts. The heating arrangement is described as consisting of six burners, one for each pot, fixed on a circular ring.

The special feature in this apparatus is that of its being of hemispherical form, with a cone rising from the centre, and for which several advantages are claimed; that is, it lessens the quantity of fluid required by the dye bath, it promotes the circulation of the hot fluid, and so tends to bring about greater uniformity of temperature, and it also acts as a flue to products of combustion of the gas burners.

The vessel contains six holes for the dye pots around its periphery, one in the center for the cone, and another for a thermometer, together with two handles, by means of which the top and its contents can be revolved, the latter being pronounced a distinct novelty in the construction of dyeing apparatus, and one which will tend to promote the main end in view—uniformity of temperature.

As a heating fluid for use with this kind of arrangement, experiments show that calcium chloride gives the most satisfactory results, its cost being also less than glycerine, and it is much superior to oil.

Diamine Bronze G and Brown B.

Leopold Cassella & Co., Frankfort on-the-Main (Wm. J. Matheson & Co., 179 Front St, New York), have published a card displaying five cotton yarn samples dyed with the above colors The shades are dyed with soda and Glauber's salt. Diamine bronze G, after the dye process, is treated with fluoride of chrome, and the diamine brown B with bichromate of potash and blue vitrol. This after treatment makes the colors very fast to light, and indeed very fast in general.

—No one in Pittsburg was ever known to say "smoke up.". The board of trade in that city has appointed a smoke nuisance committee to help find the sun. If the orb of day can be discovered, the Pittsburgians argue that there is nothing to prevent the Monongahela from replacing New England as the textile centre. The atmosphere there, would be all the dye house needed on fast black goods.

Olive Oil, Fulling, Scouring
Will mail sample on request

SOAP

Strictly Pure, Clean, Sweet, High Grade.
Price in ton lots, 5 cts. a Pound

Camden & Philadelphia Soap Co.,

PENROSE W. HIRST,

507-9-11 MAIN STREET,
520-22-24 BIRCH STREET,

CAMDEN, N. J.

New Bleaching Fluid.

A new bleaching fluid has been discovered by a German chemist, and it is to be called "ozonine." It consists of a solution of 125 parts of resin in 200 parts of oil of turpentine, with the addition of 90 parts of hydrogen, perotide, and a solution of two-fourth parts of potassium hydrate in 40 parts of water. The jelly resulting from this mixture changes in a few days into a thin fluid. The fluid requires some weeks for its completion, when it becomes a very efficient bleaching agent.

A New Chemical Work.

Dr. R. Nietzki, Professor of Chemistry, at the University of Basel, has just issued the second edition of 'Chemie der Organishen Farbstoffe" (chemistry of the organic dyestuffs). The work contains 333 pages of knowledge most useful and necessary for a dyer, and could not have been compiled by a better authority. The book is in the German language, and can be secured from Julius Springer, Manbijou Place, Berlin, Germany.

New Presses for Printing Woolen Goods.

The *Leipziger Monatschrift*, describes a new press, devised for the more perfect printing of woolen goods. The invention shows peculiar ingenuity.

In its arrangement, the press boards close the electric circle, becoming direct sources of heat; the board consists of three distinct parts, two ordinary cardboards covering a thick board formed by a zigzag nickel ribbon, levelled with intersected strips of cardboard, the whole kept together by suitable cement. The two ends of the nickel ribbon are strengthened and prolonged by soldered attachments, and when in operation are connected with the dynamo wires by clips.

When the press is in use the cloth is wrapped, as usual, alternately around armored and ordinary press boards, the number and distance of the last named being regulated according to the fibre. When loaded with cloth, the press is closed and slightly weighted down, the connection is effected, and the current regulated so as to yield the desired temperature. The whole arrangement secures a great saving of press space, and, so far as heating is concerned, half the time is saved, as against plates.

Dyeing Cops With Alizarines.

The dyeing mechanically of textile materials in the form of cops or spools has hitherto been only possible with coloring-matters soluble in water, the insoluble mordant dyes, such as alizarine, not being capable of use in this way.

Messrs. Erban & Specht have succeeded in dyeing with the artificial mordant dyes, on cops and spools, by using them in the form of alkaline solutions. The process is described by the Textile Mercury (Eng.) as follows:

The cops, spools, bobbins, etc., are impregnated with a solution of coloring-matter to be used mixed with an alkaline medium such as ammonia, hydroxides and carbonates of alkalis, or carbonate of ammonia, and alkaline salts such as phosphate of soda, borax, silicate of potash, aluminate of soda, alkaline soaps, turkey-red oil, and organic bases (for instance amines). The volatile re-agents employed have the advantage over the fixed alkalis, and those containing salts, that in the drying they evaporate and leave the coloring-matter insoluble on the fibre; whereas when fixed alkalis are employed it remains soluble. Besides the solution of coloring-matter there may be added to the dyebath substances which do not precipitate the coloring-matter in an alkaline solution; as, for example, almuinate or stannate of soda, solution of oxide of zinc and of lead in soda lye; solutions of ammonia, of chrome and copper oxides; cobalt, nickel, or manganese oxides; red and yellow prussiate of soda, chromic salts, solution of soap, turkey-red oil, glycerine, etc.

After impregnating the fibre, the excess of liquid is removed and the mate-

rial dried for fixing purposes. A short steaming will have the same effect. The dried material is then impregnated with the mordant in a bath containing the necessary mordants (alumina, chrome, iron, etc.), best in the shape of salts of a volatile acid, such as acetic acid. The excess is removed, and after or without drying the formation of the color-lake can then be effected and completed by steaming. Washing, soaping and clearing serve in many cases to increase the brightness of the dye. The following example shows the application of the process:

TO DYE TURKEY-RED ON COPS.

First bath (solution of the alizarine)

14 lbs. 1¼ ozs. alizarine R (20%),
5 gals. 1⅝ pts. water,
2⅘ pts. ammonia (25%),
7⅖ pts. turkey-red oil (80%).

After impregnation the cops are hydro-extracted and dried at a temperatur of 50°C., then treated with the

Second bath (mordants) of

4.52 gals. water,
5⅘ pts. acetate of alumina (15° Tw.),
3 pts. acetate of lime (28.4° Tw.).

The goods are again hydro-extracted and steamed one hour without pressure, one-half hour at a pressure of one atmosphere, and one-half hour at a pressure of two atmospheres. After steaming the color can be soaped, or cleared with soap or with a mixture of soap, soda, and tin salt.

Producing Figures on Anilin Black.

For the Textile World.

One of the most recent discoveries for producing figures on Anilin Black, was the process which was the subject of Patent No. 529,499, taken out during November.

The process described in this patent was that of producing white or colored figures on aniline black, on fabrics of wool or on other animal substances.

It consists in first subjecting the goods to such a feeble oxidation that the white of the wool is little affected.

Second, padding or punishing them with mixtures suitable for producing steam aniline black on cotton, and producing discharging white or colors.

They are then finally subjected to a shearing operation by which the development of the black and the fixing of the discharging colors, are simultaneously affected.

To Prevent the Spontaneous Ignition of Benzine used in Wool and Silk Industry.

Petroleum spirit, or benzine, is largely used in the silk and wool industries, and in chemical cleaning works as a solvent for greasy impurities.

Its extreme volatile and inflammable nature, has led to high rates of insurance, and frequently in utter prohibition of its use.

One who has studied the matter, declares that the ignition is spontaneous, and is caused by electrical excitation—that is, in certain states of the atmosphere, particularly when it is cold and dry, the spirit becomes excited and exhibits sparks and flashes of light, to the accompaniment of crackling sounds.

Kissling of Germany, recommends that a small quantity of some kind of soap, soluble in petroleum, be dissolved in it, and maintains that this will prevent the electrical excitation, even when as little as 2/100 is added. It is said this activity in petroleum spirit is never observed in moist or warm weather.

The soap probably provides the necessary moisture, water being otherwise non-mixable with petroleum spirit.

—GEORGIA, West Point. A dyeing and bleaching establishment will be built at this place, it is reported, which will call for an investment of about $30,000.

—NEW JERSEY, Lodi. It is said that New York parties are negotiating for the property of Byrne Bros. & Co., whose plant was burned some time ago, on which to erect a large bleachery and dye works.

—NORTH CAROLINA, Burlington. A new mill is contemplated at this place to be used as a finishing mill. Bleaching department, warehouses, etc., will also be built if the project materializes.

Wm. Pickhardt & Kuttroff,

B. Anilin & Soda Fabrik Sp. P.

NEW YORK. BOSTON. CHICAGO.
PHILADELPHIA. PROVIDENCE.

COAL TAR DYES and EXTRACTS.

Alizarine Dyes a Specialty.

SCHULZE-BERGE & KOECHL,

Successors to Schulze-Berge, Koechl & Movius,
79 MURRAY ST., NEW YORK.

Sole Agents for the ANILINE COLORS AND ALIZARINES

Made by FARBWERKE, formerly MEISTER, LUCIUS & BRUENING, HOECHST a/M.

FAST COLORS for Wool, Yarn and Piece-Goods Dyeing, and Calico Printing

Branch Offices: 138 Milk St., BOSTON, 39 N. Front St., PHILADELPHIA, Pa.

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MANUFACTURERS OF

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LIQUORS AND FLAVINES.

Importers of Chemicals and Dyestuffs.

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Manufacturers of **Acid Magenta,** (Patented.)

HEADQUARTERS FOR

Aniline Dyes,	Arseniate of Soda,	Indigo,	Cudbear,
Aniline Oil,	Chlorate of Potash,	Indigo Extract,	Picric Acid,
Aniline Salts,	Yellow Prussiate "	Archill Liquor,	Zink Auxiliary,

Chemicals, Etc

WORKS: Hudderfield, Wakefield, ENGLAND, Rouen, FRANCE, Brooklyn, N. Y.

BRANCHES: BOSTON, 367 Atlantic Ave, PHILADELPHIA, 45 N. Front St

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Manufactured by

FARBENFABRIKEN vormals FRIEDR. BAYER & Co., Elberfeld and Barmen, Germany.

Sole agents of the **Hudson River Aniline Color Works.** ALBANY, N. Y.

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Sole Agents for JOHN R. GEIGY & CO., Basle, Switzerland.

Aniline Colors, Dyewood Extracts, Etc.

Cotton Printing Specialties, Fast One-Dip Cotton Colors, Fast Wool Colors.

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Sole Manufacturers of One Dip

Galleine Colors.

Faster than Alizarine. Produced at one-half the cost.

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WM. W. HANNA, Agent. Philadelphia, Pa.

Branch Office and Warehouse: - GLOVERSVILLE, N. Y.

Anchor Color Manufacturing Co.,

Importers and Manufacturers of

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Office and Factory, - - 464 & 466 CHERRY ST., NEW YORK.

BRANCH: Philadelphia, Pa., 216 Chestnut St., JONATHAN HORSFALL, Representative.

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50 and 52 No. Front Street, PHILADELPHIA, PENN.

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FUSTIC.
BARK
CUTCH.

BEACH & COMPANY,

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DEALERS AND IMPORTERS

Dyestuffs, Chemicals, Colors AND Indigo.

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INDIGO PROCESS DYEING. CHEAPER than ALIZARINE.

ALIZARINE MORDANT. CHEAPEST and BEST known.

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ANILINE OILS AND SALTS.

LATEST SPECIALTIES.

Cresylblue, OB pat'd.	For Cotton: absolutely fast to Sunlight.	Thio Vesuvine,	BB.	One Dip Cotton Colors.
" BB "		" Brown,	BB.	
" RR "		" Yellow,	R.	
Cresylviolet "		" Orange,	G.	

Naphtazine Blue (Pat.)—a fast acid Navy Blue for Wool.

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Soda Ash, Blue Vitrol, Carbonate of Potash, Glauber's Salt and Alum, Nitrate of Iron.

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WORKS: FLUSHING, L. I. **184 Front St., NEW YORK.**

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AGENT FOR

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Avery's Lactic Acid,
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Fast Chrome Colors.

Dealer in Anilines.

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PH. H. KARCHER & CO.,

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25 and 27 CEDAR STREET, NEW YORK,

CUTCH, OXALIC ACID, CAUSTIC POTASH,

Blue Vitriol, Carb. Potash,

Chlorate of Potash, Caustic Soda, Arsenic, Shellac, Ceylon and Cochin Cocoanut Oil.

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383 WEST STREET, NEW YORK,

Importers of Celebrated "Golden Fleece" Extra Refined Concentrated 98 per cent.

Powdered Caustic Soda.

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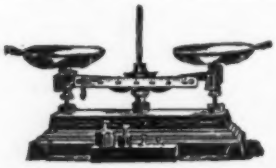
Extracts of Indigo, Indigo Carmine, Indigotine, Refined Indigo, Dressing, Softening, Bichloride of Tin, Bisulphide of Soda.



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MAKER OF

FINE SCALES and WEIGHTS,

for Woolen & Cotton Mills, Dye Works etc.

☞ Price List on Application ☜

FAST BLACK FOR WOOL on Yarn and Cloths.

Dyes in one bath, is absolutely fast in every respect and cheap in production.

Yarns and Cloths dyed in lots, or WILL SELL RECIPE.

E. HARRAS,

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J. M. Beckett & Son's Pigment Colors are BRIGHTER and FASTER than any others.

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Dealers in Dyestuffs and Textile Trade Supplies, Sole Agents for the United States

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L. C. KING & COMPANY,

Indigo, Cutch, Gambier, Acetates of Lime and Soda, Sugars of Lead, Sicily Sumac, Prussiate of Potash.

171 Front Street, - NEW YORK.

AT LAST Union Goods and Hosiery made of Cotton and Wool in any proportion can be dyed a good serviceable Black in One Operation with the

Save Time, Labor, Steam, Trouble and Expense of Speck Dyeing.

Naumkeag One-Dip Black Dye.

Competent man sent free of expense to start you up. Address,

NAUMKEAG DYE COMPANY, - Salem, Mass.

Commercial Lactic Acid Mordant.

THE PUREST, STRONGEST AND CHEAPEST PRODUCT ON THE MARKET.

Used by the Leading Mills. Endorsed by the Best Chemists.

Original Manufacturers.

Beware of all Imitations.

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Original Introducers.

Use no Substitutes.

Our Mordant—The Standard. Our Trade Mark—The Guarantee.

ALSO DEALERS IN

DYESTUFFS and CHEMICALS.

Boston Office: 202-204 Purchase St.

WORKS: NEWTON UPPER FALLS, MASS.

—The sixth annual convention of the National Union of Textile Workers of America, will be held in Providence, beginning May 6.

—The Standard Scale and Supply Co., manufacturers of the Standard scales, has, at the solicitation of its Eastern patrons, opened a branch office in the Bullitt building, 135 South Fourth street, Philadelphia. The company manufacturing these accurate scales is not controlled by any combination, trust or pool.

—The Nicholson File Company, of Providence, has recently issued a catalogue of the most comprehensive and elaborate sort. In it is shown a fac simile of every file made by the company, interspersed with cuts of the various departments of the business. Some idea can be gained of the care taken by the company in making its goods, when it is known that every file turned out is tempered in a mineral spring, located in the yard of the company. The catalogue shows sections of file steel of all the regular kinds and sizes. The book, in short, is one which file users cannot well be without.

—The Cherokee Falls Mfg. Co., of Blacksburg, S. C., have ordered revolving flat cards and drawing frames for their new mill, of the Pettee Machine Works, Newton Upper Falls, Mass.

—Robert Laidlaw, president of the Laidlaw Dunn-Gordon Pump Co., of Cincinnati, was elected treasurer of the National Association of Manufacturers, which convened at Cincinnati, the third week in January. Mr. Laidlaw was one of the leading spirits in organizing the association and much of the success of the convention was due to his executive skill and untiring energy. The delegation was banqueted at the new plant of the Laidlaw-Dunn-Gordon Pump Co.

—At the annual meeting of the American Soap & Washoline Co., Cohoes, N. Y., Jan. 10, 1895, the following officers were elected for the ensuing year: president, Hugh Graham; treasurer and manager, M. Andrae; secretary, E. A. Graham; assistant manager, C. G. Andrae. A dividend of 10 per cent. was declared and ordered paid to the stockholders.

—G. Dearden has moved from Montmorency, P. Q., to Tolland, Ct.

—The M. A. Furbush & Son Machine Co., Philadelphia, have on order some woolen machinery for Messrs. Beckman & Co., and the F. Muhlhauser Co., both of Cleveland, Ohio; also two new cards for Messrs. E. T. Steel & Co., Bristol, Pa.

THE F. A. GENTH CHEMICAL LABORATORY.

(Established 1851.)

Analyses and Assays of products of every description.
Investigation of industrial processes.

103 N. Front St., Philadelphia, Pa.

THOS. A. HARRIS' PATENT DEVICE

For **Protecting** the **Bolts** of Square **Vats** and **Tubs** from **Corosion.** Bolts furnished. Rights for sale and royalties arranged.

WM. H. BURKHARDT & CO.,

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ESTABLISHED 1840.

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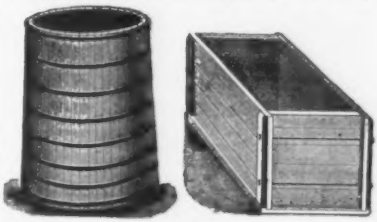

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American Stave & Cooperage Co.

Manufacturers of Cedar, Cypress, Pine or Oak

ROUND AND SQUARE TANKS

Of any Shape or Capacity.

CASKS, HOGSHEADS, BARRELS and KEGS.

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PHENIX IRON FOUNDRY, Providence, R. I.
Manufacturers of
Calenders, Starch Mangles, Calender Rolls of Paper, Cotton and Husk,

Bleaching AND Dyeing Machinery

Printing Machines, Shafting, Pulleys, Gearing, Hydraulic Presses, Tenter Drying Machines, Ageing Boxes, Expansion Pulleys, Hollingsworth Automatic Feed, Can Drying Machines, Grate Bars, Cloth Cutting Machines, Silk, Lace and Cotton Finishing Machinery,

and Sole Manufact'rs of **NAGLE POWER FEED PUMP.**
Send for Catalogue.

LINCOLN & COMPANY,
MANUFACTURERS OF IMPOVED MACHINERY FOR

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Sole Makers for the United States of
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Complete Plants for
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54 to 70 Arch Street, - HARTFORD, CONN.

COPPER PRINT ROLLERS AND SINGE PLATES

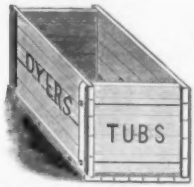
For CALICO PRINTERS and DYERS.
Best of Workmanship, Quick Delivery and Bottom Prices.
New Bedford Copper Co., New Bedford, Mass.

ESTABLISHED 1847. INCORPORATED 1890.

JOHN HOPE & SONS
ENGRAVING AND MFG. CO.,
Engravers to Silk, Calico, Oil Cloth, and General FABRIC PRINTERS.
—BUILDERS OF—
Pantagraph, Mill Engraving and Grounding Machines,
urning Off, Polishing and Dead Center Lathes, Clamps, Die Blocks, Diamond Points
Zinc, Gravers, and other Engravers' Supplies.
STEEL AND COPPER PLATE RULING MACHINES.
ELMWOOD, - PROVIDENCE, R. I.

Established 1788.

JOSEPH OAT AND SONS,
232 Quarry Street, PHILADELPHIA, PA.
MANUFACTURER OF
Copper Dye Vats, Vacuum Pans,
Steam Cylinders, Logwood Extractors,
And all kinds of copper work used in dyehouses and chemical laboratories.



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Cedar Vat, and Tank Factory.

MANUFACTURER OF

All kinds of **VATS AND TUBS** used by Dyers, Bleachers, Mills, Factories, etc.

ESTIMATES SOLICITED.

North 2d Street, above Cambria Street,

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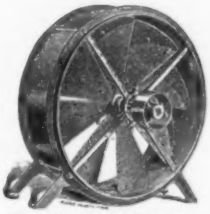
Down Town Office, 140 Chestnut Street. Hours, 12 to 1.

NEW ENGLAND

Ventilating and Heating Company.



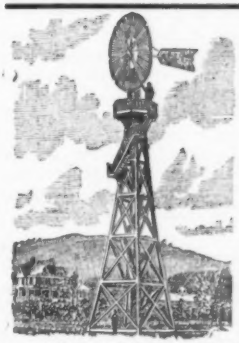
From 1 to 6 ft. In Diameter.

Our system of Ventilating and Drying by air circulation will improve quality and increase production.

PLANS AND ESTIMATES ON APPLICATION.

OFFICE AND WORKS:

926, 928 and 930 Manton Avenue, Providence, R. I.

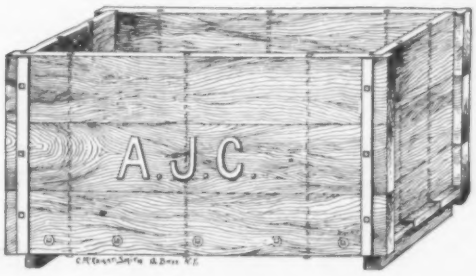


CORCORAN'S Tanks, Vats & Dye Tubs are Perfect

Of either Cedar or Oak, Pine or other woods. Bands fitted with **Adjustable Lugs** and **Draw Rods** with friction plates. Over 200 sizes. Send for information.

STORM DEFYING WIND MILLS.

Most durable, always satisfactory. They are working in every country on earth.



Office and Salesrooms:

11 John St., N. Y. City.

Factory:

Jersey Avenue and 13th Street, JERSEY CITY.

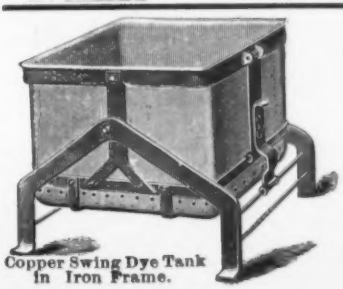
Telephone 238 Jersey City.

Seamless Cast Iron Steam Kettles,

Cast in one piece. No leaking. No boiling over. No waste of steam. Sizes 6 to 200 gallons. Send for Circular "S."

WALKER & PRATT MFG. CO.,

31-35 Union Street, Boston, Mass.



Copper Swing Dye Tank in Iron Frame.

Chas. Brabender & Son,

Patterson Copper Works,

Manufacturers of

COPPER WORK FOR DYERS,

Silk Finishers, Chemical Works, etc., Vacumm Pans, and Copper Apparatus for Logwood Extract Manufacturers. Jacket Kettles, Varnish Kettles, Steam Coils in Copper and Iron. Estimates furnished to all parts of the country.

GUN MILL YARD,

Telephone 240. **PATERSON, N. J**

—James M. Blaisdell, who has been superintendent of Wood & Co.'s cotton mills, in Max's Landing, N. J., since 1888, has resigned.

—C. W. Rider has been elected treasurer and secretary of the Merrick Thread Co., of Holyoke, in place of the late Timothy Merrick.

—A. V. Morris' Sons, of Amsterdam, have restored the rate of wages paid their spinners, which was reduced a year ago.

—The enterprising wool and shoddy firm, Chas. J. Webb & Co., of Philadelphia, has bought the wool commission business of Whilden, Smith & Co., 116 Chestnut St., of that city. Mr. Webb's idea is to conduct a wool commission business, in addition to a general dealers trade, the same salesmen acting for both houses. At 150 North Front Street a low grade of stock is handled, but at the Chestnut Street office the wools are of the finest sort. The same success is favoring the new house, which has made the old concern so well known. John Whilden is the manager of the commission department.

—Eddy & Street, the well known yarn and braid dealers, of Providence, R. I., send out a particularly attractive calendar for 1895, which will surely find space on the walls of those manufacturers who are fortunate enough to receive one.

—The J. H. Williams Co., of Utica, N. Y., the mill supply dealers, are running their factory 13 hours a day.

—The Mohawk Valley Cotton Mills, of Utica, N. Y., are running full time on fine goods in the shirting line. The mill is now equipped second to none.

—The Somerville Manufacturing Company, of Somerville, Conn., has placed an order with the Parks & Woolson Machine Company for one of their new double shears and a two-cylinder triple acting gig.

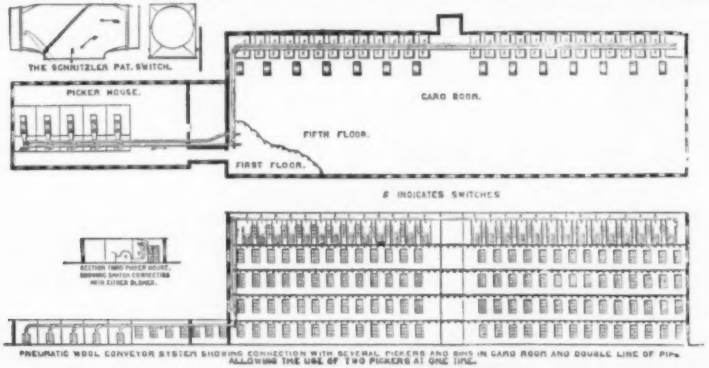
—The Joseph Dixon Crucible Company has just issued a third edition of its pamphlet entitled "Graphite as a Lubricant," which has been revised to date. The development of high speed and great power machinery is rapidly increasing the importance of securing the best lubricant, making the scientific opinions given therein, of especial value.

—The Chamber of Commerce, of Chattanooga, Tenn., wishes to locate a modern cotton mill in or near that city. Lookout Mountain, at the northerly end of which Chattanooga is situated, has already been chosen as the location for a southern mill by one of the largest of northern corporations, because of its medium temperature and general salubriousness. Chattanooga is known, even by those who have never visited the city, as one of the most enterprising of places. Among its advantages are nine lines of railroads and steamer communication with St. Louis, cheap coal and building materials, proximity to the cotton fields, fine water and low taxes.

THE BOSTON PNEUMATIC CONVEYOR

For the Rapid Handling of Wool, Cotton Stock, Rags, Excelsior, Jute and all kinds of Fibrous Material, wet or dry.

Using the Boston Patent Wool Fan and Patent Switch.



PNEUMATIC WOOL CONVEYOR SYSTEM SHOWING CONNECTION WITH SEVERAL PICKERS AND SIDS IN CARD ROOM AND DOUBLE LINE OF PIPE ALLOWING THE USE OF TWO PICKERS AT ONE TIME.

MANUFACTURED ONLY BY

BOSTON BLOWER COMPANY,

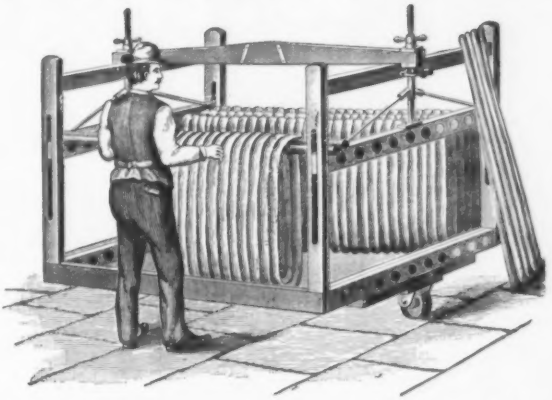
BOSTON, MASS.

THE WOLSTENHOLME DYEING MACHINE.

IT SPEAKS FOR ITSELF.

The only Practical, Simply-Constructed, Labor-Saving Device for Skein Yarn or Slubbing Dyeing ever offered to the Trade; will save THREE FOURTHS in labor and produce better results. Two Frames supplied with each machine.

Patented in the United States, Canada and Europe.

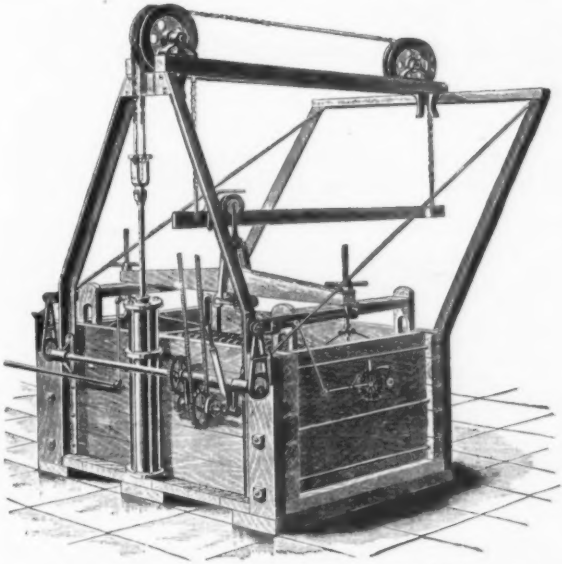


Manner of Filling Frame with Yarn, which is done in less time than the same quantity can be put on the sticks for hand dyeing.

NO FELTING OF FINE WORSTED OR WOOLEN YARNS.

FOR STANDING BATH WORK ON COTTON IT HAS NO EQUAL.

Operated by One Man. **One Frame Filled while other is being Dyed.**



The Lowest Priced Machine In the Market.

Double the Capacity of Any Other.

Improved and Perfected.

Back View of Machine showing its Operating Mechanism.

Any further information, prices, etc., will be cheerfully furnished by

DILL SPOOL SUPPORT CO.,

N. E. Corner Hancock Street and Lehigh Avenue, Philadelphia, Pa.

Where Machines can be seen in operation, and facts and figures will be furnished.

NYE & TREDICK,

Manufacturers of Plain and Automatic

CIRCULAR RIB
KNITTING MACHINERY

For Knitting Ribbed Shirts, Drawers, Tights, Combinations, Skirts, Jackets, Caps, Bicycle and Athletic Suits, Hosiery, Shirt-Borders, Cuffs, Etc.

Auxilliary Machines and Supplies.

Sewing, Crocheting and Finishing Machinery, Seamless Knitters, Winders, Loopers, Presses and Shaping Boards; also, Engines, Boilers, Shafting and Pulleys.

606 Arch St., Philadelphia, Pa., U. S. A.

CHICAGO OFFICE:

18-30 W. RANDOLPH ST., CHICAGO, ILL.

ESTIMATES GIVEN FOR A

Complete Equipment of a Knitting Mill.

Franz & Pope Knitting Machine Co.,

BUCYRUS, OHIO.

ESTABLISHED 1868.

Original builders of Seamless Knitters.

WE STILL LEAD?

KNITTERS

Automatic Seamless Knitters, Loopers, Steam Presses, Hosiery Brushing Machines, Ribbers, Mitten Machines, etc.

CHICAGO OFFICE:
1001, Ellsworth Bldg.
353 Dearborn St.

Complete Hosiery Mill Outfits. Builders of Knitting Machinery for Special Purposes

ALL MACHINES GUARANTEED.

Knit.

New Mills.

—*GEORGIA, Barnesville. The Barnesville Hosiery Co., with capital of $5000, paid in, have applied for a charter. They will run 35 knitters on seamless hosiery. Officers will be elected as soon as incorporated.

—*INDIANA, Aurora. The new stocking factory which we reported would be established here, will be located in the Fisk Building, and machinery is now being placed.

—*MICHIGAN, Detroit. The Novelty Knitting Co., reported as incorporated, inform us that they are now getting out samples of gloves and mittens. Their factory is located at the corner of Woodbridge and Bates Streets. Dr. I. E. Maire is president of the company, Percy D. Dwight, secretary and treasurer, and Charles L. Richardot, superintendent.

—MICHIGAN, Mendon. In regard to the knitting mill projected at this place, we understand that $8000 has already been subscribed, and that as soon as $2000 more is received, the company will incorporate. Arrangements are being made with George B Fettig, of Michigan City, Ind., to remove thither a plant in the manufacture of ladies' reform dress underwear.

—*NEW YORK, Amsterdam. Messrs. Buchanan & Austin inform us that they will have their new knitting plant ready to be put in operation by the first of March. They will iput in eight knitting machines, manufacturing ladies' and gents' cotton ribbed underwear.

—NEW YORK, Glen Falls. It is reported that John Barnes, of the firm of Barnes & Roselle, wholesale fruit dealers, Amsterdam, will retire from that firm, and establish a knit underwear factory at this place.

—*NEW YORK, Hornellsville. Messrs. Smedley, Bardeen & Smedley, whom we reported would start a knitting plant at this place, inform us that they will be ready for production by the first of April, manufacturing silk gloves, mitts and veiling. Steam power will be used.

—*NEW YORK, Little Falls. Mr. John McCauley, proprietor of the new Beaver Knitting Mill, informs us that he is about ready to begin the production of sweaters and Jersey ribbed underwear for ladies and children. He will put in 10 knitting machines, using steam power.

—NEW YORK, Oneida. It is reported that Thos. Morgan & Sons will erect a new building to be used for the manufacture of hosiery.

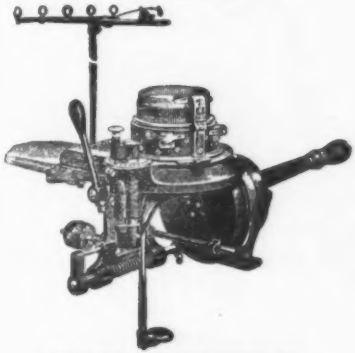
—*NEW YORK, Utica. The Utica knitting Co., recently reported as removing into the buildings of the Norwalk Mfg. Co., inform us that this is not so, but that they understand the building will be occupied by Messrs. Farrell, Allis & Co., for the manufacture of fine Jersey ribbed underwear. Their New York office will be at 51 Leonard St., and they will sell their goods direct to jobbers.

—NORTH CAROLINA, Franklinton. A hosiery and yarn mill, it is reported, will be built here by S. C. Vann.

—PENNSYLVANIA, Hellertown. A. A. Woodring is making arrangements to rent the agricultural works in this town, in which to start a knitting mill.

—PENNSYLVANIA, Middletown. There is talk of the erection of a stocking factory at this place.

THE
KEYSTONE
KNITTER
For Seamless Hosiery.



CYLINDERS
OF
Forged
Steel

With bevel top for perfecting the stitch in the plain fabric and closing the gore in the heel and toe.

Automatic Ribbers, Loopers, Winders, Steam Presses, etc.

Keystone Knitting Machine Man'f'g Co.,
1716-20 NO. FIFTH ST., PHILADELPHIA, PA.

CRANE MFG. CO.
LAKEPORT, N. H.
Spring Needle Circular Knitting Machine
For Hosiery, Shirts, Drawers, Jersey Cloth and Stockinet.
A Specialty of Hardened Bladed Burr Wheels with Self Oiling Brackets.

BRUSHING MACHINES.
Price $65.00 Net.
LEWIS JONES, Bristol, Pa.

Pepper Manufacturing Co.

Lakeport, N. H.,

Manufacturers of

Knitting Machinery,

INCLUDING

Pepper's Flat-Ribbed Cuff Machine,

Automatic Welt and Loose Course Machine for Sock Tops. New Circular Stripes with Welt, Loose Course and Striping (Automatic), for Shirt Cuffs, Sock Tops, Hose Legs, Wristers, etc.

All kinds of

CIRCULAR RIBBED MACHINES,

For Men's Underwear, Ladies' and Misses' Hose Legs & Legnigs.

CORRESPONDENCE SOLICITED.

THE

Merrow High Speed Crochet

and Scallop or Shell Machines.

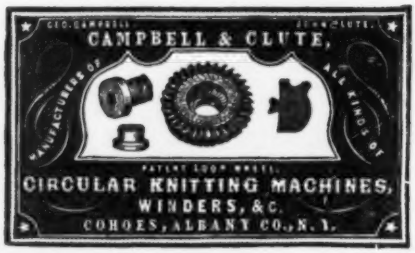
For finishing the edges of Knit Goods, Bed Blankets, Horse Blankets, or other fabrics.

For particulars and samples, address

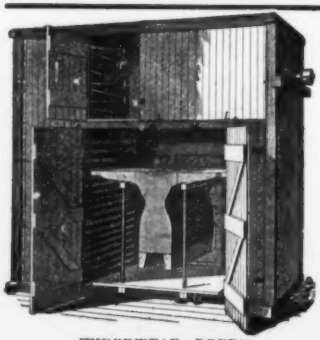
MERROW MACHINE CO.,

133 Sheldon St.. HARTFORD. CONN.

SHIRT Border Machines



Four and Five Section Flat Cuff Machines.



UNDERWEAR DRYER.

Cyclone Dryers

—FOR—

Stockings, Underwear, Stock, Yarns, Cloth, Etc.

Textile Machinery and Shafting Work.

PHILADELPHIA

TEXTILE MACHINERY CO

Hancock St., above Lehigh Ave.,

PHILADELPHIA, PA.

—*PENNSYLVANIA, Pottsville. In regard to the new stocking factory which we recently repor ed would be started at this place, we are informed that Ira S. Henne will operate a new mill, commencing about the middle of February, on ladies' hose. Hn will put in six knitting machines, running them by electricity.

—*PENNSYLVANIA, Riegelsville. In regard to the knitting factory re.ently reported at this place, Mr. Lee S. Clymer informs us that he will build a new mill, putting in six knitting machines at the start, in the manufacture of ladies' knit underwear. He would like prices on knitting mill outfit, also elevator, dynamo, feed water heaters and pumps, steam engine and boiler, gas engine and telephone equipment.

—*PENNSYLVANIA, Trevorton. In regard to the knitting mill which we recently reported would be established at this place, we are informed that a stock company has been organized, in which John T. Heenan is active, and that they are in correspondence with several firms who manufacture knitting machinery, and would like to receive quotations from others. They will make sweaters and underwear, employing about 20 hands at the start.

—WISCONSIN, Sheboygan. The Sheboygan Knitting Co., who operate a knitting factory at Grafton, are erecting a building at this place. It is understood that they will use their Grafton factory for spinning their yarn, and the new plant at Sheboygan for knitting purposes.

Enlargements and Improvements.

—DELAWARE, Wilmington. The Georgetown Hosiery Co. are putting in some new automaic knitting machines.

—ILLINOIS, Chicago. The Princess Knitting Works will build an addition to their plant at 1058 Belmont Ave.

—*KENTUCKY, Bowling Green. Barnes & Rowe, proprietors of the Southern Knitting Mills, inform us that they are about to double the capacity of their plant, the Commercial Club, of that city, taking half interest in the mills. They will put in 10 knitting machines for men's and women's hosiery.

—MASSACHUSETTS, Everett. Messrs. Pratt & Bailey, successors to S. Brainard Pratt & Co., inform us that they are erecting a new building two stories high, with basement, and also an addition to their present structure. They use steam and electric power, and manufacture mittens, gloves and infants' shirts.

—MASSACHUSETTS, Lowell. The Shaw Stocking Co. have placed an order for 24 knitting looms to add to their plant.

—NEW JERSEY, New Brunswick. The loss caused by the fire at the Kilbourn Knitting Mills has been adjusted, and a new office building will be built of the old site.

—NEW YORK, Cohoes. H. L. Shaver is making some improvements to his knitting mill for the purpose of increasing the capacity of the plant.

—NEW YORK, Cohoes. It is understood that the Star Knitting Co. will operate the Crescent Knitting Mill in connection with their present plant.

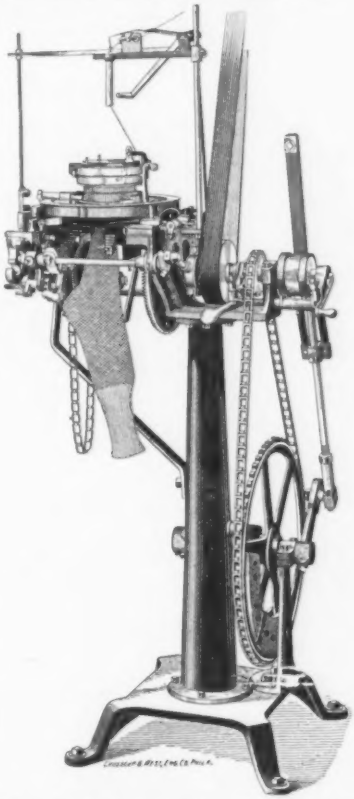
—NEW YORK, Little Falls. The Saxony Knitting Co. are building an addition 40x25 feet, three stories high. The lower floor will be used as a boiler room.

AUTOMATIC

SEAMLESS KNITTER

For making Seamless Hosiery of all Grades.

BEST QUALITY FABRIC.
LARGEST PRODUCTION.
SMALLEST COST FOR LABOR.



Plain and Automatic Machinery

For Knitting Ribbed Shirts, Drawers, Combination Suits, Skirts, Tights, Shirt Borders, Cuffs, Sleeves, Tops for Half-Hose, Hosiery Etc.

ALL OUR MACHINERY GUARANTEED IN EVERY PARTICULAR.

NATIONAL
Automatic Knitter Co.,
724, 726 and 728 Cherry St.,
PHILADELPHIA.

Why do Knitting-Machine Builders Try to Produce a Machine to Make a

BRANSON SOCK?

JAS. L. BRANSON,

OF THE BRANSON MACHINE COMPANY,

506 St. John, St., Philadelphia,

Is the original inventor and manufacturer of this class of Machines, and, like most originators, manages to keep ahead of all imitators. Send for Circular A.

KNITTING MACHINE CYLINDERS.

PAXTON & O'NEILL,

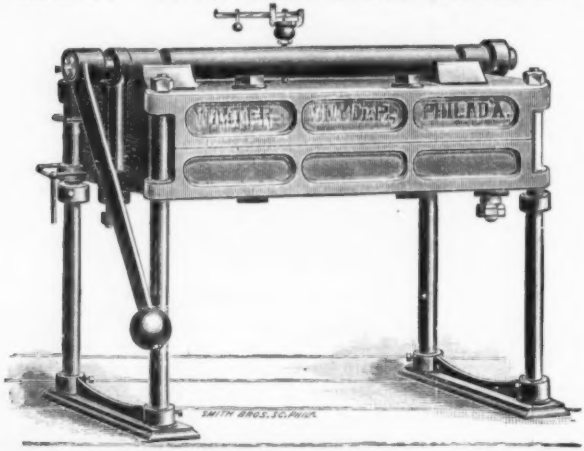
129 Bread Street, - - - Philadelphia, Penn.

Originators of the Weldless Forged Steel Cylinder. Dials, and Cylinders all sizes up to 24 inch, for the different Circular Rib Frames, Seamless Knitters, etc. The Finest that can be cut, and the Best as to Material Accuracy and Durability.

EVERYTHING FOR

Hosiery AND Undewear Knitting Mills

NEW OR SECOND-HAND.



JAMES TAYLOR, 835 Arch Street, PHILADELPHIA.

—NEW YORK, Oneida. Messrs. Owen, Keenen & Kershaw inform us that the knitting mill which we reported they had purchased, will be enlarged by three additional sets of machinery. They will manufacture men's fine white cotton underwear. The plant will be called the O. K. K. Knitting Mill.

—NEW YORK, Schenectady. The Empire State Knitting Co. contemplate building an addition to their plant.

—NORTH CAROLINA, Elkin. We have further information concerning the new cotton mill contemplated at Elkin. H. G. Chatham, of the Chatham Mfg. Co., is interested in the project, and informs us that they want to build a $50,000 yarn mill, to make single and ply yarns. They would like to get estimates on all the necessary machinery. Their plan is to spin medium and fine counts, but this matter, we presume, is open to further consideration.

—VERMONT, Bennington. The Bennington Knitting Co. will add a set of knitting machinery to their plant.

Mills Starting Up.

—NEW HAMPSHIRE, Tilton. Work at the mill of the Britain Mfg. Co. is starting up slowly. The company manufactures cotton, merino and cashmere hosiery.

—NEW YORK, Amsterdam. The Globe Mill of the United Knitting Co. has started up, after being closed about three months.

—NEW YORK, Camden. Camden Knitting Co. have started up their plant. They run on Jersey ribbed underwear.

—NEW YORK, Cohoes. The Tivoli Hosiery Mill has resumed operations after a shut down of about a month.

—NEW YORK, Kinderhook. Work has been resumed at the mill of the Kinderhook Knitting Co., with a full force of operatives.

—NEW YORK, Seneca Falls. The Gleason Knitting Mills, which have been idle for a long time, have now resumed operations. They manufacture men's cotton and merino underwear.

—NEW YORK, Troy. Work has been resumed at the mill of the Rob Roy Hosiery Co.

—NEW YORK, Valatie. The Valatie Knitting Co. has started up on full time.

—NEW YORK, Valley Falls. Work has been resumed at the Jewell Knitting Mills, after an idleness of six weeks.

—NEW YORK, Waterford. The Waterford Knitting Co., after a shut down of four weeks, have resumed operations with the old schedule of wages.

—NEW YORK, Waterford. Work will be resumed shortly at the mills of the Hudson Valley Knitting Co.

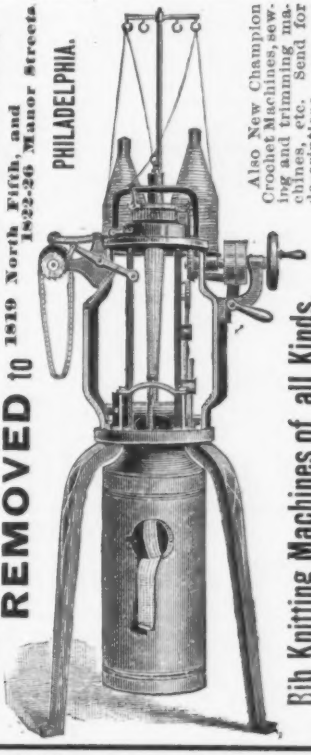
—PENNSYLVANIA, Scranton. The Lackawanna Mills have resumed operations, after a long idleness.

—PENNSYLVANIA, Slatington. The new knitting mill, established by Mr. I. C. Hunsicker, is completed, and operations have been commenced.

—VERMONT, Wells. The knitting mill of R. M. Lewis has resumed operations, after a shutdown of several weeks.

—The Somerset Manufacturing Company, of Raritan, N. J., is having two two-cylinder triple acting gigs built for it by the Parks & Woolson Machine Company.

CHAMPION SEWING MACHINE COMPANY,
REMOVED to 1819 North Fifth, and 1822-26 Manor Streets
PHILADELPHIA.



Also New Champion Crochet Machines, sewing and trimming machines, etc. Send for descriptions.

Rib Knitting Machines of all Kinds.

WE NEED NO SPECIAL POINT
To prevent the needle from picking up the brass, nor special mechanism to prevent injury to the brass, for the needle in our looper never strikes anywhere but the centre of the point.
HEPWORTH & CO.,
Lehigh Ave. & Mascher Sts., Phila., Pa

LACINGS For Overshirts and Underwear,
Both Tipped and Tasseled, and
OVERSHIRT NOVELTIES.
For Samples and other information, address
HEPNER & HORWITZ, 84 Leonard St., N. Y.

BUSCH & LINN,
(Formerly connected with J. C. Goodwin.)
General Repairers for all SEWING MACHINES,
Fabric Trimmers, Folders, Cutting Machines, and Experimental Work.
120 NORTH 7TH STREET, PHILADELPHIA.

Stanton & Lewis, 316 & 318 Branch Street, Philadelphia, Pa.
Central Steam Forge.
Special Machinery for Forging Weldless Knitting Machine Cylinders. Dials of best Steel to order.

BRINTON, DENNEY & CO.,

Builders of a Full Line of

CIRCULAR RIB AND SEAMLESS Knitting Machinery,

For Underwear and Hosiery.

213 and 215 RACE ST.. - PHILADELPHIA.

GIBBONS FRAME

Sewing Machines, with or without Trimmers.

SPECIAL FEATURES:

Welting Machines, Finishing Machines, Machines for Sewing Wet Goods, Machines for Double Heel Work, Machines with Concealed Stitch for Tops of Stockings, Etc., Etc. Tables and Shafting with Transmitters.

All machines have Ball and Socket Bearings, with Hardened and Ground Working Parts

MACHINE JOBBING.

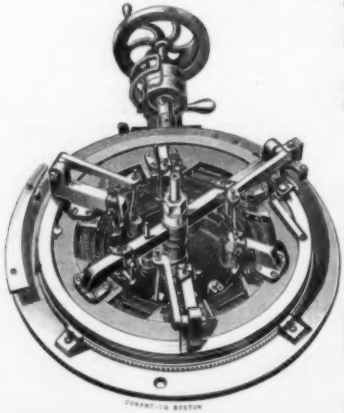
Manufactory, Second and Diamond Sts , Philadelphia.

SOMETHING NEW UNDER THE SUN

TO

Manufacturers of Ribbed Underwear,

Sweaters, Cardigan Jackets, Leggins, Cuffs, Etc., who are not acquainted with the



Leighton Knitting Machines,

WHICH

KNIT THE GOODS

WITH THE

Greatest Economy.

Manufacturers who are using The Leighton Machines, know that it **FILLS THE BILL** completely. Correspondence is solicited from parties wishing to establish a Knitting Plant, or who may wish to improve their present line of goods. Address,

Leighton Machine Co.

MANCHESTER, N. H.

Business Established in 1873.

Fires.

—CONNECTICUT, South Manchester. The machine shops at the Cheney Brothers' silk mill have been destroyed by fire. Loss $50,000; fully insured.

—CONNECTICUT, Willimantic. Fire at the plant of the Smithville Mfg. Co. caused a loss of about $10,000. Insured.

—MASSACHUSETTS, Georgetown. The Parker River Woolen Mills, owned by Robert Bleakie, of Hyde Park, have been destroyed by fire. Loss $30,000; insurance $10,000.

—MASSACHUSETTS, Roxbury. The silk trimming factory of A. Zeigler was recently injured by fire to the extent of about $25,000. The fire was confined to the third story, and 28 looms, out of the 68 in the mill, were destroyed.

—NEW YORK, New York. The silk factory of Henry D. Klotz, on West 50th Street, has been totally destroyed by fire. Loss about $60,000. This company had been negotiating with the citizens of Shamokin, Penn., with a view to removing their plant to that place.

—NEW YORK, Oriskany Falls. The mill operated by Henry A. Langley, on Cooper St., on woolens, and known as the Hicks Mill, has been completely destroyed by fire. The mill was valued at $6500, and the stock at $3500. Partially insured.

—PENNSYLVANIA, Chambersburg. The wool picking house of the Chambersburg Woolen Co., recently caught fire, causing a loss of about $2000 on machinery and stock. Fully covered by insurance. The company is undecided whether to rebuild or refit the old buildings.

—PENNSYLVANIA, Philadelphia. The gingham mills of Walker & Richmond have been totally destroyed by fire. Loss on stock is said to be $40,000 and on machinery and building $30,000.

—RHODE ISLAND, Pawtucket. The dyeing and bleaching works of Robert D. Mason & Co. were injured by fire recently. The loss is estimated at $8000; fully insured.

—PENNSYLVANIA, East Columbia. The Columbia Embroidery Co. have been chartered, with capital stock of $30 000. The incorporators are J. Addison Campbell, John C. Young, John Armitage and others.

—PENNSYLVANIA. Germantown. The Cope Knitting Mills will, in the future, be run by E. M. Cope & Co. with J. B. Cope as manager, who has grown up with this mill. They will continue in the manufacture of ladies', children's and men's ribbed underwear, in summer and winter weights.

—PENNSYLVANIA, Philadelphia. The mill machinery and stock of Job Batty's Sons, was sold at sheriff's sale, January 28th, and purchased largely by the estate of Job Batty.

—PENNSYLVANIA, Robesonia. We have the report that H. W. Sheeler, manufacturer of seamless hosiery, will move his knitting machines from this place to a mill in Slatington, at which concern he will act as superintendent.

—TEXAS, Denison. It is announced that the Denison Cotton Mill has been sold to a party of New England capitalists, who will put the plant in operation at once, on the manufacture of the coarser grade of cottons.

—VIRGINIA, Portsmouth. It is reported that the new buildings of the Portsmouth Cotton Mfg. Co. have been leased to a party who will establish a six set knitting mill.

WM. COREY CO.,
Manufacturers of Knitting Machine
Latch Needles,
MANCHESTER, N. H.

Excelsior NEEDLES
The Best Hosiery Needle in the market.
Manufactured by
Wardwell Needle Co., Lakeport, N. H.

LOYAL T. IVES.
MANUFACTURERS OF ALL KINDS OF
SPRING
Knitting Needles
New Brunswick, N. J.

SPRING AND RIB
Knitting Needles.
Fine needles for Plush, Cap and Balbriggan work a specialty.
A sample 1000 will speak for themselves.
DAVID J. AMES,
PHILMONT, - NEW YORK.

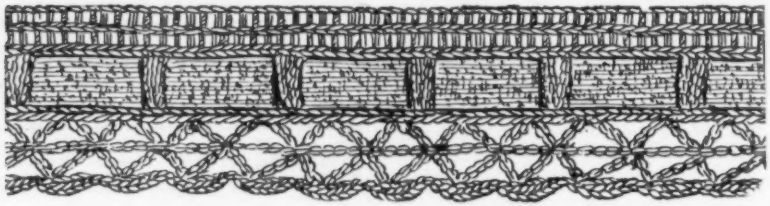
ORION TREAT,
MANUFACTURER OF
SCREW RIVETED BALMORAL AND DOUBLE RIB NEEDLES.
(Patented May 6. 1890.)
Manchester Green, - - Conn.
All work guaranteed.

H. LYDALL & FOULDS,
Manufacturers of all kinds of
Knitting Machine Needles, Narrowing Points, Hooks, etc.
Pat. Screw Rivet Balmoral Needles a specialty
MANCHESTER, CONN.

STAR NEEDLE CO.
Spring Knitting Needles and Points from the Best Cast Steel. Satisfaction Guaranteed.
S. K. Paramore
Manager.

New Britain, Conn.

Wm. Breedon & Son,
Manufacturers of
Spring Knitting Needles,
And Burr Blades of all kinds.
Amsterdam, N. Y.



Friedberger's Edgings.

THE RECOGNIZED STANDARD FINISH

FOR

LADIES' JERSEY RIBBED UNDERWEAR.

WEEKLY OUTPUT EDGINGS NOV. 1891—75,000yds.
" " " " 1894—1,200,000 "
" " BRAIDS " 1894—600,000 "

INCREASED PRODUCTION PROVES

THAT OUR GOODS ARE

SUPERIOR TO ALL OTHERS.

C. FRIEDBERGER,

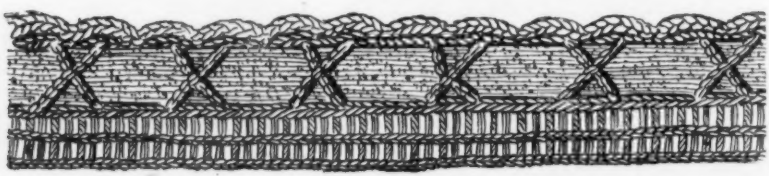
MANUFACTURER OF

Braids and Laces,

Germantown, - - Philadelphia.

WE ARE NOW MAKING SATIN RIBBONS.

Correspondence Solicited. Telephone Connection.



Sheldon's Standard Trade Publications.

Sheldon's Standard Trade Publications have been promptly published for 1895, and are now on the market. The further development shown in this system of imparting trade information, and the very general use of the publications by the trade, throughout the country, is the strongest evidence of their necessity and value. In the matter of advertising patronage, there is no other work published that carries so universal a representation of manufacturers, agents and importers as this Buyers' Reference Book.

The jobbing trade comprises not only dry goods, but notions, furnishing goods, clothing and millinery, in the United States and Canada. In the present issue of the Retail Trade, can be traced the growth of the department store system in the larger towns. The Special Reports published by Sheldon, furnish important trade information, daily and weekly, to their subscribers. Parties interested in the export trade can find in this work (under that title) the buyers for foreign markets.

Narrow Fabrics and Lace Edgings.

The Krout & Fite Mfg. Co., Philadelphia, announces its business in the knitting department of the TEXTILE WORLD, emphasizing its leading productions. The concern has begun the manufacture of lace edgings in connection with its familiar specialties, spool tapes and other narrow fabrics, and has increased its facility by adding new machinery and making enlargements. Some of the edging samples it exhibits show the finest execution in attractive variety.

The Krout & Fite Co. is a member of the Philadelphia Bourse, and will have an office in that building when it is completed. The concern invites correspondence, and will furnish samples upon application.

—The Cranston Worsted Mills, manufacturers of novelty worsteds and mohair yarns, Bristol, R. I., sent to their friends, the first of the year, a constant reminder in the form of an attractive little calendar, which not only registers the days of the month, but has in connection a device for registering the hour at which a man is expected to return to his office.

STEPHEN A. ASHMAN,

Forged Steel Cylinders and Dials

For Knitting Machinery.

3 Fetter Lane, PHILADELPHIA.

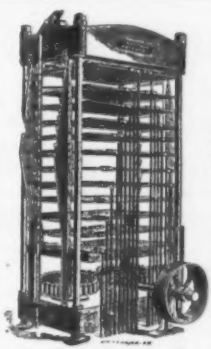
JOHN S. PALMER,

Manufacturer of

PAPER BOXES **for Hosiery and Textile Goods.**

Metal Edge Boxes or Heavy Goods.

35 Wistar St., Germantown, Pa.



THE

CRAWFORD

Hollow Plate

Steam

Press

For Knit or Woven Goods.

Is worth investigating

J. J. Crawford & Son

Nashua, N. H.

For Foster and other Winders,

CONE TUBES,

Manufacturer of all kinds of

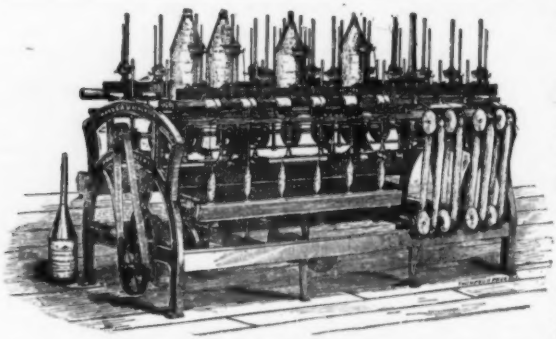
Paper Cop Tubes,

Parallel Tubes, Taper Tubes,

Special Tubes to order.

J. McCAUSLAND,

33 Canal St., PROVIDENCE, R. I.



GEO. W. PAYNE & CO.,

PAWTUCKET, R. I.

WINDERS for Hosiery Manufacturers. Wind from cop, skein or bobbin.

Improved Upright Spoolers,

Doubling Spoolers,

Quillers, Etc.

We make a complete line of this machinery, and have hundreds of machines in satisfactory operation all over the country. We invite correspondence.

ROBERT E. LYNCH,

Cor. of Howard and Diamond Sts., PHILADELPHIA.

Printer of BANDS and LABELS for

Hosiery Tickets and Labels for Piece Goods, Carpets and Rugs.

Special Designs Furnished on Application.

CIRCULAR RIB KNITTING MACHINES,

Carefully designed and well made with Solid Forged Steel Cylinders and Dials, Segmental Cam Rings, Encased Take-up, Stop Motions, etc. Standard Sizes, Reasonable Prices. Also

KNITTING MACHINE CYLINDERS AND DIALS, CHAINS, JACKS, ETC.

If interested, address

W. STAFFORD & CO., West Mill St., Little Falls, N. Y.

Novelty Knitting Machine Co.,

MANUFACTURERS OF

AUTOMATIC CHECKERS, VERTICAL STRIPING MECHANISM.

SPRING NEEDLE KNITTING MACHINERY,

AND OTHER NOVELTY ATTACHMENTS

BURR WHEELS With Removable Hardened Wings, Shafting Hangers, Pulleys, Etc.

F. L. WIGGIN, Proprietor, LOWELL, MASS.

BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS. T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA.

—Edwin H. Baker, agent of the Otis Company, of Ware, and of the Palmer Mill, in Three Rivers, is soon to make his headquarters at the New York office of Bliss, Fabyan & Co. Mr. Baker has been connected with the Otis Company more than 20 years.

—Max Lowenthal, knit wool goods manufacturer, of Rochester, has admitted his brother Louis to partnership and the firm will hereafter be known as Max Lowenthal & Bro.

—Edwin Davenport has moved from Carleton Place, Ont., to Rockford Ill., where he is now employed by the Rockford Mitten & Hosiery Co.

—The directors of the Hope Knitting Company, of Cohoes, have voluntarily increased the wages of their employees 10 per cent. The weavers of the Granite State Mills, Newport, have also received a like increase.

—George Holmes has taken charge of the mill of the Starin Silk Fabric Co., of Fultonville, N. Y.

—The M. A. Furbush & Son Machine Co., of Philadelphia, have just finished three 60 inch worsted cards for Messrs. Howland Croft, Sons & Co., of Camden, N. J.

—The Pettee Machine Works, Newton Upper Falls, Mass., are shipping revolving flat cards to the Seaconnet Mills, Fall River, Mass.

—A. Garth, who has been located in Bristol, R. I., is now in the employ of the Star Worsted Mills, Fitchburg.

—Benj. Kaye, now of Lowell, who has seen 57 years of service, is supposed to have worked longer as a cloth presser than any other man alive. John Hartley, boss dyer in the Sterling Mills, in Lowell, is his son-in-law. Mr. Kaye was born 1823 and has divided his years between England and America He is the father of 15 children.

—The report of the treasurer of the Lowell Mfg. Co , of Boston, rendered at the recent annual meeting, shows a loss of $33,609 for the year ending Oct. 31, 1894. This was due as much to the shrinkage on wool on hand as to the small profit on manufactured goods.

—Capt. Thos. B. Hill, 69, president of the Warsaw Woolen Mills, of Warsaw, Ill., died recently of paralysis. He was an Englishman by birth.

—Elisha H. Palmer, 81, of Montville, Ct., is dead. He had served in both branches of the Connecticut Legislature during his career as a manufacturer of cotton bats.

—Frank J. Kiessling, for nearly 30 years an overseer in the Merchants Woolen Mill, East Dedham, died recently. The funeral services were conducted by Teutonia lodge 219, D. O. H., the singing being by the Harmonia Gesang-Verein, a society organized by Mr. Kiessling. The burial was in Brookdale cemetery, Dedham.

A Cheap Tin Roof

MAY remain leakless for two years. A good roof ought to last ten times as long. The cheap roof will have to be taken off and replaced in less than five years. The good roof is good for twenty.

We make absolutely the Best Roofing Tin.

THE very best. We can prove it. It is best because it will last longer than any other. Because it costs less to keep it in repair. Because it is most economical in the long run.

IT is a significant fact that no roofing plates in the United States sell beside ours at an equal price. Other tin finds a market by sinking its price to the level of its quality. If you care to be roof-wise, write to us for information.

MERCHANT & CO., Inc.,
517 Arch Street,
PHILADELPHIA, - PA.

Fitchburg R. R.

HOOSAC TUNNEL ROUTE,
SHORT LINE

BOSTON
—TO—
CHICAGO

PALACE SLEEPING CARS
Through without change via
NIAGARA FALLS.

Trains leave Boston, Causeway Street Passenger station at
9.00 A.M. 3.00 P.M. 7.00 P.M.
For further particulars apply to
J. R. WATSON,
Gen'l Pass. Agent.

Capital, $1,200,000.

100,000 SPINDLES.
Weekly Product 120,000 lbs.
14's to 160's.

HIGH GRADE

Cotton Yarns,

SPECIALLY ADAPTED FOR

Silk, Plush, Upholstery & Hosiery

MANUFACTURERS.

American Peelers. Sea Island. Egyptian Oottons.

Superior Qualities Combed and Carded—Furnished in singles, 2, 3, 4 and 6-ply chain warps, skeins, beams, spools, tubes, cones and Lisle Thread yarns.

Cops for Weaving and Twisting. Cops for Hosiery.

GLOBE YARN MILLS,

Fall River, Mass.

ARNOLD B. SANFORD, . . Treasurer.

Arnold B. Sanford, *Pres.* Arthur H. Mason, *Treas*
Capital Stock, $500,000.

Sanford Spinning Co

FALL RIVER, MASS.

30,000 Spindles. Weekly product, 50,000 pounds 14s to 40s.

NOVELTY COTTON YARNS,

FROM AMERICAN PEELERS AND EGYPTIAN COTTONS.

OUR SPECIALTY: Superior qualities of Hosiery Yarns, Natural Shades of Cottons, and in Colors, Jaegers, Mixes, and Bleached, Hosiery Cops on Long Tubes, Skeins, Tubes, Cones and Lisle Thread Yarns. Furnished in Carded and Combed Qualities in Singles, 2, 3 and 4-plies.

YARN DEPARTMENT.

The Eastern Yarn Market.

Single and Double Roving White Cop Yarn. Eastern spinners are getting few orders, but within a month orders will be placed freely. There has been a satisfactory business done on ribbed underwear for heavy weights, and contracts for yarn will soon be placed covering these orders. Sweaters are having an excellent run, and many of the mills which will later be busy on heavy weight underwear are now running on sweaters. Much yarn is being used by weavers for cotton worsteds, and the dyers have all the business they can swing. Many of them are running over time to get their orders out, the numbers most in demand being 2/30s, 2/40s and 2/10s. On Southern yarns many of the commission men are short on some numbers and are having hard work to fill orders, although the prices are very low. Still, cotton is off in price and there is no reason why spinners should not be doing well. Hosiery manufacturers have not yet started up, but will shortly be doing an excellent business. Many orders have been placed on 8/3 ply and 8/2 ply. It would seem that the Southern mills are doing the most business.

Spinners running fine numbers are having a fair business, although that trade is slacking up. The light underwear trade, however, will last until April 31st. Much fleece lined underwear will be made next season, as this class of garment is in great demand. Much 1/11s, 1/8s and 1 /7s white cop yarn is used for the back, and 1/26s to 1/32s on the face. No indications of an advance in the price of yarn can now be seen.

Colored Yarns. Trade continues off on this class. Jaeger is going to be used largely next season, as is also silver grey and camel's hair mix. A revival of business on colored yarns to is be looked for within a month, or as soon as knitters get back on heavy weights. Much Peruvian cotton is being used, as is also carded Egyptian yarns. A sizable trade on colored yarns for the face of fleece lined underwear may be expected. The hosiery trade will also require much colored cop yarn. Sweaters are being made of Jaeger and Peruvian and Egyptian yarns. All are pushing for business and spinners will soon be busy. Spinners are complaining about prices and inform salesmen that they are not in the business of giving yarn away. Philadelphia prices are better than those received in the East.

Combed Egyptian and Allen Seed Yarn. Knitters of ribbed underwear and balbriggan have as much business as they can attend to on light weights, and many have orders that will last until May and June. One of the best lines of underwear on the market to-day is being made by a concern in Wakefield, Mass. It has had a large run on these goods. The secret of its sucess has been in using the best of yarn and knitting machinery. They use 1/20s and 1/50s, and are well sold on ribbed underwear. Many knitters on lisle twist yarn are bothered about shipment. Those mostly used are 2/42s, 2/44s and 2/50s. Balbriggan manufacturers are also doing well, and are holding their own against foreigners wonderfully. Foreigners cannot meet them within 50 cents a dozen. Spinners continue busy with orders that will last until April; at that time heavy weights will be running and a continued business will result. Fine yarns continue to hold their prices.

WOOLEN YARN.

Spinners have very few orders in hand, although some contracts have been placed. One big order of 75000 pounds was placed last week by a large manufacturer. This was by a weaver, who, although he has woolen machinery, is compelled to buy outside. Many weavers work in this way. During a rush they put their plain work out, that they may keep up on their fancy work.

Combined Capital Stock, $2,250,000 Total Spindles, 170,000

WM. D. HOWLAND, Treas. BYRON F. CARD, Agent.

New Bedford Mfg. Co.,
Howland Mills Corp'n, *
Rotch Spinning Corp'n.

High . . . . Grade Cotton . . . . Yarns.

Single or Twisted,
Combed or Carded,
Hosiery Yarns,
Chain Warps,
Skeins, Spools
and Cops;
also on
Beams

FROM 4's TO 120's.

BYRON F. CARD, - Selling Agent,

New Bedford, Mass.

Orders at this time from weavers are the exception, and not the rule, as weavers have not as yet received their full complement of orders, and will not until about the 15th of March. Orders for woolen yarn are placed last. Hosiery manufacturers have not yet placed contracts, and must surely be in the market within a month. Two-ply yarns are now being sold to some extent. The rubber trade is off, as all the mills in the rubber trust have shut down. We believe spinners will have a satisfactory trade later.

WOSTSED YARNS.

Weavers are all busy, both with light weight and heavy weight goods. The light weights have lasted longer than was expected, and even at this late date orders have been booked. The heavy weight season has opened and many orders have been placed. There is to be a shortage of yarn, but this will be taken care of by the foreign spinners. Prices remain about the same, with a fair demand for yarn. It is to be noted that one large manufacturer found it advisable to withdraw his line of $1.00 coatings and refuse delivery on account of a mistake. It is understood that the Fletcher mills are well sold up on a line of whip cord clays, which are having a run. Worsted cheviots are selling for 70 cents a yard. The foreigners are a long way from getting control of this market on cloth, although on yarn it is going to be a close rub. Spinners do not realize it fully as yet, and it is hard to make them believe the prices that foreign yarns are being sold at, especially French yarn.

Foreign tops are being offered very cheap, although some of these tops appear to be soaped to make them weigh heavy. The mills mostly sold up are the larger weavers. The smaller mills, however, are much encouraged at the outlook. Knitters are beginning to come in the market for yarns, and are placing orders for much foreign yarn. Dress goods manufacturers are having an excellent business, and have as many orders as they can handle for some time. There is also a brisk braid business

GRANT YARN CO.,
COMBED AND CARDED COTTON
YARNS 40s and above. AND
FITCHBURG, MASS. WARPS

O. H. SAMPSON & CO,
YARNS,
BOSTON, 67 Chauncy St.
NEW YORK, 58 & 60 Worth St.
PHILA. 206 Chestnut St.

JAMES E. MITCHELL & CO.,
Commission Merchants.
122 & 124 Chestnut St., Philadelpia, Pa.
51 & 53 Summer St., Boston.
Cotton, Woolen & Worsted Yarns.
All numbers on Hand and Made to Order.

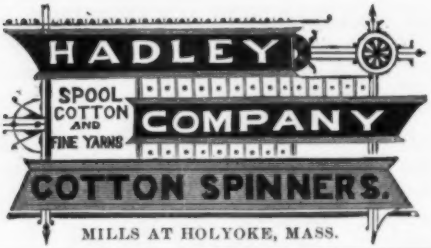
SAWYER, MANNING & CO.,
YARNS,
96 & 98 Franklin St., NEW YORK.

J. H. LANE & CO.,
Commission Merchants.
COTTON and JUTE YARNS
110 Worth St., NEW YORK.
24 Kingston St., BOSTON.
151-53 Fifth Ave., CHICAGO.

ALEX'R KING & CO.
YARNS.
FINE IMPORTED YARNS A SPECIALTY
54 Leonard St., New York.

TILLINGHAST, STILES & CO.
COTTON YARNS
ALL NUMBERS.
Chain Warps, Skeins, Cops, Cones, Beams, Spools, Colored and Grey Yarns. Hosiery and Combed Yarns.
20 Market Square, room 53. Providence, R. I.

O. S. HAWES & BRO.,
COTTON and SILK YARNS,
All Forms and Numbers.
Imported Yarns a Specialty.
50 Bedford St., Fall River, Mass.



SPINNERS OF

FINE COTTON YARNS

30s TO 100s.

Gray, Bleached, or Colored. On cop, in skein on spools, cones or tubes.

Fine Cotton Warps, single and two-ply, in chain, etc.

95 Milk Street, BOSTON.

Wilkes-Barre Lace Mfg Co.

SPINNERS OF

COTTON YARNS.

Double-Carded, Frame-Spun,
Double-Roving, In Skeins.

30s TO 40s, TWO-PLY ONLY.

Wilkes-Barre, Pa.

JAS. CHADWICK & BRO.

Limited.

Egyptian and Sea Island **COTTON YARNS.**

COP, SKEIN, WARP, OR CONE. 20'S TO 150'S.

ALSO FULL LINE OF IMPORTED YARNS, 40s TO 200s.

JERSEY CITY, NEW JERSEY. Branch Office, 241 Chestnut St., Phila.

Hosiery AND Weaving Yarn | ALBERT IVINS GROLL, BOSTON.

The J. R. Montgomery Co.,

Manufacture WINDSOR LOCKS, CONN.,

High Grade COTTON WARPS, IN FAST FANCY COLORS.

PRINTERS of COTTON WARPS, Wool, Worsted and Silk Yarns.

NOVELTY YARNS OF ALL KINDS.

BOUCLÉ, BOURITTE, FLAKE AND SLUB YARNS.

The outlook is certainly for a prosperous year.

It is to be doubled if the Englishmen will import as many clay worsteds after this season. They supposed they were to have undisputed possession of the American market on those goods, as had been their custom in times past, but the new clay loom, with one weaver for two looms, has knocked them out, and they find that they cannot even compete, as their cloth is inferior to the American makes. Much foreign wool stock is being imported in shape of noils, double combed noils and roving waste. The Englishmen are high, as compared with the French, on stock. Taken as a whole, we believe that weavers have a prosperous year before them. Spinners, however, may have to hustle.

Prices as below:

DOUBLE ROVING WHITE COP YARN.

11s and 12s	15 cts.
16s	16 cts.
20s	17 cts.

Jaeger and Camels Hair,

10s to 12s	15 cts.

Cones 1 cent extra.

Other colors quoted on application.

Egyptian Combed.

1/10s to 12s	19 cts.
1/20s	20 cts.
1/34s	29 cts.
1/40s	32 cts.
1/45s to 1/50s	34 cts.

Cones extra price.

ALLEN SEED COMBED.

1/10s	20 cts.
1/40s	32 cts.
2/40s	37 cts.

WOOLEN YARN.

Will quote on inquiry, as there is too great diversity to give satisfactory quotation.

WORSTED YARN.

Fine Australian.

2/40s	80 to 75 cts.

Other numbers in proportion.

On other qualities of Australian, spinners will not quote at this time as they are awaiting developments.

Half-blood Domestic.

2/40s	.68 cts.

DOMESTIC.

1/4 Blood,	
2/28s, 24s, 18s	52 cts.
2/32s	53 cts.
3/8 Blood,	
2/32s	58 cts.
2/28s, 24s	58 cts.
1/2 Blood,	
2/22s, 28s	62 cts.

KERR THREAD CO.
—SPINNERS OF—
Fine Combed Sea Island **COP SINGLES**
All Numbers, 30s to 150s.
Fall River, Mass.

JAMES WHITESIDE,
Importer and Commission Agent,
Spun and Tussah Silk, Cotton Worsted, Mohair, Linen and Jute **Yarns.**
96 Spring St., NEW YORK.

GEORGE M. FLEMING,
Commission Merchant and Manufacturers' Agent for sale of
Wool, Worsted, Merino and Cotton **Yarns**
35 Strawberry St., Philadelphia, Pa.

E. P. WHITMAN. D. A. HAGAN
WHITMAN & HAGAN,
YARNS. 32 Westminster Street, PROVIDENCE, R. I.

ABEGG & RUSCH,
WORSTED YARNS
Dry Spun, Nos. 36s to 100s.
COTTON YARNS
Nos. 12s to 120s.
92 GRAND ST., NEW YORK.

WOOLEN YARNS.
All grades Woolen, Mixed and Merino yarns.
15 SETS CARDS.
EDWARD M. ROCKWELL,
LEOMINSTER. - MASS.

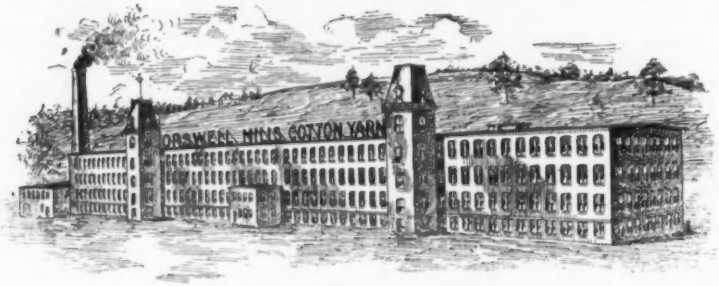
HENRY C. FOX.
Commission Merchant.
Dealer in odd and end lots of
COTTON, WOOLEN AND WORSTED YARNS,
No. 45 Strawberry St., Philadelphia.

WILSON H. BROWN & BRO.,
MANUFACTURERS OF
FANCY WOOLEN and MERINO
Knitting **YARNS** & Weaving.
GERMANTOWN, PA.
Salesroom, - 240 Chestnut St., Philadelphia.

CAPACITY, 50,000 Spindles.

ORSWELL MILLS

FITCHBURG MASS.



COMBED OR CARDED

COTTON YARNS

In Chains and Skeins, on Balls, Beams, Spools—single or twisted.

GREENE & DANIELS MFG. CO.,

Combed and Carded

Yarns, Threads, Twines and Chain Warps,

Furnished in any manner desired by the trade.

PAWTUCKET, R. I.

THE WILLIAM CLARK COMPANY,

WESTERLY, R. I.

Mills equipped with the latest and most improved machinery.

Combed Egyptian from No. 20s to 100s. Combed Sea Island from No. 40s to 200s.

Also 2, 3, 4, 5 ply and 6, 9 and 12 ply cable laid.

Hosiery Yarns on Cops, Tubes or in Skeins, Grey, Bleached or Dyed. (Fast Colors.

Cotton Yarns AND WARPS Of Every Description.

James F. White & Co.

COMMISSION MERCHANTS,

54 and 56 Worth St., NEW YORK.
228 Chestnut St., PHILADELPHIA.

BURLAPS all WIDTHS and WEIGHTS.

PLAIN AND FANCY PATTERN

Cotton Warps,

WHITE, MIXED AND COLORED.

For SATINETS, BLANKETS, ETC.

WHITTIER COTTON MILLS,

LOWELL, MASS.

Littlefield Manufacturing Co.

K. K. HOSIERY YARNS, COPS, CONES & SKEINS.

Threads for Spooling. Single and Double Yarns for Silk, Woolen or Cotton Goods.

PAWTUCKET, R. I.

DISCREPANCY IN PRINT

The Philadelphia Yarn Market.

The movement of yarn has been well maintained the past month, and there are a number of orders ahead, but prices have not advanced and in some instances have been cut down. Customers generally think they are at bottom now, but there is still enough anxiety to sell, to induce cutting on many yarns. With present rate of consumption there would certainly be an advance in prices, if cotton should stiffen up a little. There is certainly no chance to make any money on present values, on account of extremely low prices. Warps, 20/1 and 26/1 are very scarce. We quote:

WARPS.

20/1	12½ cts.
22/1	12½ to 13 cts.
26/1	13 to 13¼ cts.
20/2	13½ cts.
12/2	12 cts.
30/2	17½ cts.
30/1 Southern	15 to 15¼ cts.
30/1 Eastern	15½ to 16¼ cts.

SKEIN.

26s filling	13 cts.
20s filling	12½ cts.
19s soft	12½ to 13 cts.
4s to 10s soft	11 to 11¼ cts.
10s to 12s hard	10½ to 11 cts.
10s to 12s soft	11½ to 12 cts.
14s hard	11 to 11½ cts.
14s soft	11¼ cts.
14/2 hard	11¼ to 11½ cts.
20/2	13¼ cts.

SOUTHERN CONES.

6s to 8s	12 to 12½ cts.
10s	13 to 13½ cts.
12s	13¼ cts.
16s	14 to 14½ cts.
20s	15½ to 16 cts.
24s	16 cts.
26s	16 cts.

SOUTHERN COPS.

6s to 8s	11½ cts.
10s	12 cts.
12s	12 cts.
16s	13 cts.
18s	13 to 14 cts.

MIXED COLORED CONES.

6s to 8s	14¼ to 15 cts.
10s to 12s	15 to 15½ cts.
16s	16 to 16½ cts.

SKEIN.

8/3 carpet	10½ cts.
8/3 black	10½ to 11 cts.

HARDT, VON BERNUTH & CO.,

YARN IMPORTERS

Sole Agents for

JOHN WULFING & SONS,
Worsted Yarns.

SIR TITUS SALT, BART, SONS & CO., Ltd.,
Mohair, Cashmere and Alpaca Yarns.

W. HOLLINS & CO., Ltd.,
Merino and Mixed Silk and Wool Yarns.

McCONNEL & CO., Ltd.,
Lace Curtain and Thread Yarns.

BENT, LEY SILK MILLS, Ltd,
Spun Silk Yarns.

477 Broome Street, New York.

BALE, STUART & CO.

Spun Silk, Cotton and Worsted YARNS.

31 George St., MANCHESTER, ENG. 51 Greene St., NEW YORK

BUCKINGHAM & PAULSON,

COMMISSION MERCHANTS,

Yarn and Warps,

83 Leonard St., NEW YORK.
118 Chestnut St., PHILADELPHIA.
211 Jackson St., CHICAGO.

Wesendonck, Lorenz & Co.,

44-46 LEONARD ST., N. Y.

FOREIGN WOOLEN, MERINO, WORSTED Yarns for Hosiery, Underwear, Dress Goods, Men's Wear.

JAS. W. GREAVES & CO.

Worsted and Woolen

Providence, R. I.
Telephone 877. YARNS.

TUCKER & COOK MFG. CO

MANUFACTURERS OF

WHITE AND COLORED COTTON WARPS

Nos. 6s to 30s,

On Beams, Jack Spools or in Chain

CONWAY, MASS.

GUERIN SPINNING CO.

JOS. GUERIN, Agent

Custom Spinning of Woolen and Merino Yarns of all descriptions (specially in fine numbers) spun according to the Belgian system.

92 South Main St., - Woonsocket, R. I.

Frank E. Patterson, Prest. Oscar W. Wood, Treas.

GERMANTOWN SPINNING COMPANY INCORPORATED GERMANTOWN JAN. 9TH 1890

Germantown Spinning Co.

COTTON CARDED

HOSIERY YARNS

In numbers from 6s to 26s.

Germantown, Philadelphia.

GEO. FELL & SON,

LEATHER MANUFACTURERS,

Bolton, England.

SPECIALTY:

ROLLER SKINS

PERSIAN, FOR EGYPTIAN AND SEA ISLAND COTTON YARNS AND FINE COUNTS,
WELSH, FOR AMERICAN COTTON YARNS AND COARSE COUNTS.

REGISTERED TRADE MARK

Cable and Telegraphic Address,

"PELICAN BOLTON"

AI Code Used.

GEORGE FELL & SON BOLTON LANCASHIRE

REGISTERED TRADE MARK

EGYPTIAN COTTON

HERMAN CAPELLE,

Rothschild Building, Cor. Leonard St. & W. Broadway

NEW YORK.

H. BINDERNAGEL Alexandria, Egypt.

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. E. J. CARRIGAN, Sec.

Established 1860.—Incorporated 1893.

THE S. BLAISDELL JR., CO.,

Egyptian COTTON Peruvian

American Long Staple a Specialty. and all American Southern points.

Shipments direct to mill form Egypt, Peru

CHICOPEE, MASS.

9/4 slack	10½ to 11 cts.	20s	16 to 16½ cts.
60-yd double reeled	6 cts.	24s	17 to 17½ cts.
10s double reeled	11 to 11½ cts.		
16/3 slack	12½ to 13 cts.		
EASTERN COPS.			
26s shuttle	13¼ to 14 cts.		
40s shuttle	17 to 17½ cts.		
10s to 12s hosiery	13½ to 14 cts.		
14s	14 cts.		
16s	14 to 14½ cts.		

Cones, 1-2 ct. to 1 1-2 ct. above cops.

Skein, 1-2 ct. above cops.

Egyptian, 2c. to 2 1-2 c. above white.

*Woolen and merino yarns in small demand at very low prices.

Worsted in good demand at unsatisfactory figures to spinners.

—Wesendonck, Lorenz & Co., 44-46 Leonard St., New York, have opened a foreign yarn department, under the charge of Mr. V. Sacre, and are now prepared to take orders on foreign, woolen, merino, and worsted yarns, in staples colors, natural browns and mixes for hosiery, underwear, dress goods, and men's wear. They represent some of the best and largest manufacturers, and will submit samples, etc., of any grade required.

—*SOUTH CAROLINA, Columbia. The Richland Cotton Mills, whom we recently reported as organized with capital of $150,000, inform us that they will start the foundation of their new plant February 15, having it completed next September. The building will have capacity for 20,000 spindles, but only 10,000 will be put in at the start and 300 looms. Steam power will be used.

—*SOUTH CAROLINA, Greenville. The cotton mill company in which we reported F. W. Poe was interested, has applied for a charter under the name of the F. W. Poe Mfg. Co., with an authorized capital of $250,000. They now have about $135,000 subscribed, and as soon as $175,000 is secured, organization will be affected.

—SOUTH CAROLINA, Irene. It is reported that the Red Bank Mills, which were burned a short time ago, will be rebuilt.

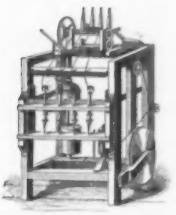
—*SOUTH CAROLINA, Walhalla. The Walhalla Cotton Mills Co., recently reported as incorporated, inform us that they will start the foundation for a new plant by the first of February. They will put in 5000 spindles. John D. Verner is president and treasurer, and D. P. Robins, secretary.

—*TEXAS, Dallas. It is now given out that work will be commenced next month on the building of the new cotton mill at Dallas, which we have several times reported. Eastern capitalists are interested in the project. Machinery for a finer grade of goods will be used.

—TEXAS, Waco. A $50,000 cotton mill is proposed for this place. Mr. William Cameron is interested, and offers to take $10,000 in stock for same.

—TEXAS, Fort Worth. It is understood that $50,000 has been subscribed toward a $200,000 cotton mill to be built at this place, under the management of the Texas Land & Colonization Co. It is also reported that a $50,000 bonus is assured.

—TENNESSEE, Chattanooga. A company has been organized at this place, with capital of $75,000, to erect a woolen mill. No names are reported in connection with the project.



Arkwright's Original Spinning Frame, invented 1768.

ESTABLISHED 1769.

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Manufacturers . . of . . COTTON YARN.

Single Yarns Carded and Combed. 2 ply CASSED YARNS, suitable for the silk, lace and suspender trade. Also WARPS from 60s to 200s.

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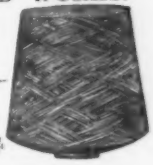
Manufacturers of

Cotton Yarns and Polished Threads. Colored Yarns and Threads on Cones a specialty.



Samples sent on application. Correspondence solicited.

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YARNS, THREADS, TAPES, BRAIDS,

215 Church St., Crochet Lace Edging for Ribbed Underwear. Philadelphia, Pa.

RICHARD A. BLYTHE,

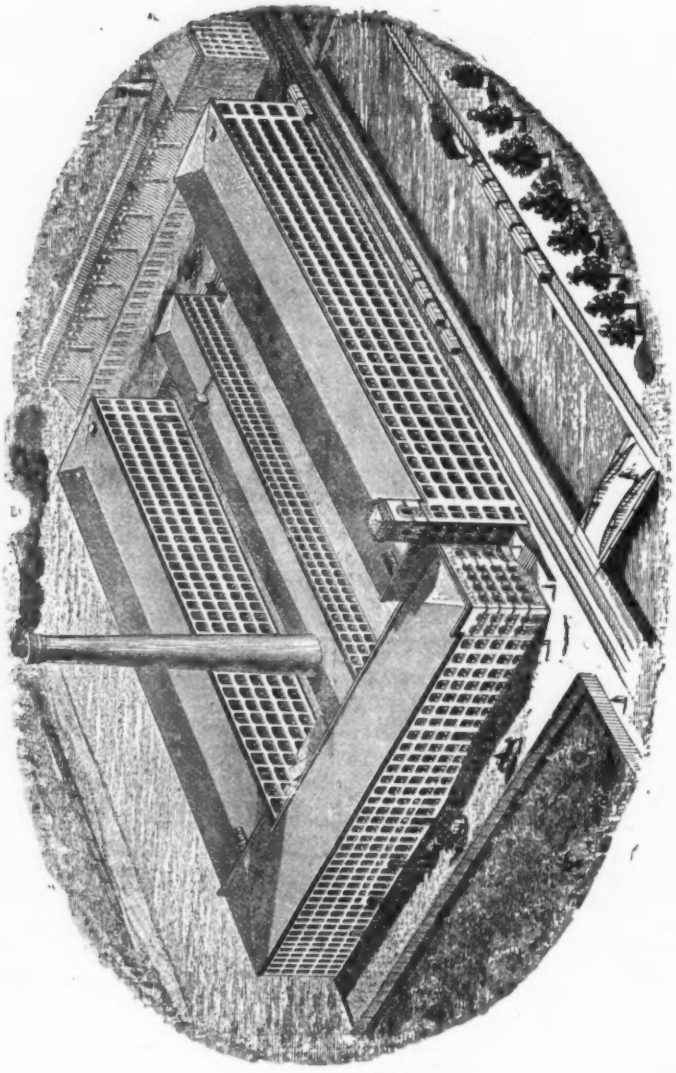
Fine Nos. a Specialty, 20's to 150's. Carpet Yarns and Warps, 4's to 20's.

Cotton Warps and Yarns,

114 Chestnut St., Philadelphia, Penn.

Washington Mills Company,

LAWRENCE, MASS.



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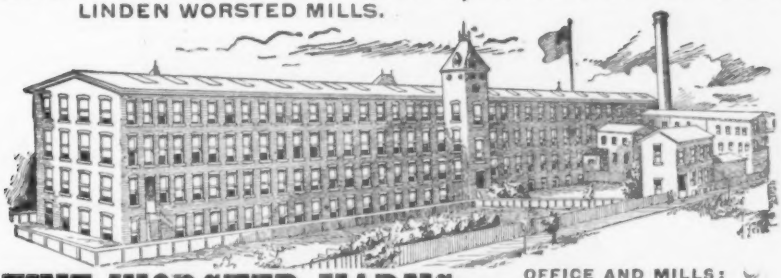
HOWLAND CROFT, SONS & CO.

LINDEN WORSTED MILLS.



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WEAVING and HOSIERY YARNS.

We Buy for Cash

WARPS, COPS, TWIST and SOFT SKEINS, Single, Double, 3-ply, 4-ply, etc.

COLORED YARNS for HOSIERY

on Cones, a Specialty.

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MALCOLM MILLS CO.,

MANUFACTURERS OF

Novelty Yarns, Silk Noil Yarns, in Fast Colors and White.

Mills, Frankford, Pa. Office, 216 CHESTNUT ST., PHILA.

Miscellaneous.

New Mills.

—*CONNECTICUT, Stamford. The new mill recently reported as being projected at this place, will be called the Rippowam Woolen Co. They will be incorporated with capital stock of $150,000, with privilege of increasing to $250,000. John A. Brown, C. O. Miller and others are the incorporators. The company will manufacture furniture plush, carriage robes and horse clothing.

—WYOMING, Sheridan. A number of capitalists contemplate establishing a woolen mill at this place. They propose a plant to cost about $35,000, for the manufacture of woolen goods which would be used in this locality. William Lever, of Fremont, Neb., is interested.

*MASSACHUSETTS, North Abington. The Abington Goring Co. have their plant in readiness for operation, and will begin work at once.

—TEXAS, Marshall. It is reported that a felt factory will be established at this place, by J. W. Harle.

—WEST VIRGINIA, Martinsburg. A charter has been granted to the Crawford Woolen Co., having a capital stock of $50,000.

—NORTH DAKOTA, Valley City. There is talk of erecting a woolen mill at this place. It is said that Eastern capitalists are interested in the project.

—OHIO, Cleveland. There is talk of erecting a woolen mill at the West Side, on Clark Ave. The proposed plant will be 200 feet long, four stories. No names are reported as yet.

—*PENNSYLVANIA, Coudersport. In regard to the new woolen mill which we recently reported would be established at this place, we are informed that C. J. Marble & Sons are building an addition to an already existing structure in that town, and will place 252 spindles 3 looms and 1 set of cards, for the manufacture of flannel sheeting and shirting and stocking yarn, using steam and water power. Will have dye house.

—PENNSYLVANIA, Reading. A three-story brick building, 80x125 feet, it is reported, will be built on Orthodox st., by the Co operative Mfg. Co., to be used for the manufacture of worsted goods.

—NEW YORK, New York. The New York Braided Cord Co. has been incorporated with capital stock of $100,000, to manufacture and deal in twine, cords and ropes. The directors are John Quinn, A. I. Napier, J. A. B. Cowles, and others.

—*MASSACHUSETTS, Lowell. The Vernon Worsted Co. is the name of the new concern of which Arthur P. Knapp is proprietor. This company, as we have previously reported, occupies the old Nesmith Mill, on Howe St.

NATIONAL AND PROVIDENCE WORSTED MILLS,

CHAS. FLETCHER, President.

MANUFACTURERS OF WORSTED YARNS, SPUN ON THE

ENGLISH SYSTEM.

FRENCH SYSTEM.

Worsted Yarns in White, Mixed and Fancy Colors, on Bobbins, Dresser Spools and Skeins.

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ALLEGHENY WORSTED MILLS,

Wolstenholme, Harrigan, & Clarke, MANFRS. OF

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ALL NUMBERS SINGLE AND TWO-PLY,

Sell Direct,

on Cop or in Skein, for Weaving and Knitting Purposes, in White, Natural & Fancy Mixes

Office and Mills: Alleghney and Trenton Avenues, Phila., Pa.

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CHARLES B. ROCKWELL, Treasurer, . . Manufacturers of

Fancy Yarns, Loops, Knots.
Spirals in Mohair and Worsted.

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Medium and Fine Grade Weaving and Knitting Yarns.

GOODWILL, ASHWORTH & CO., Jamestown, N. Y.

YARNS

SOLIS - - BOSTON.

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ANDREW J. SOLIS, Jr. & CO.

RIVER SPINNING COMPANY,

WOONSOCKET, R. I.

Belgian System WOOLEN and MERINO Yarns.

In any shade or quality suitable for making any class of Goods, domestic or foreign at prices to insure competition with imported goods of any description.

Selling Agents: JOHNSTON & FARIE. Apply to Andrew Adie, 132 South 3rd St., Philadelphia

Enlargements and Improvements.

—ALABAMA, Tuscaloosa. The Tuscaloosa Cotton Mills will add fifty new looms to their plant in the near future.

—CONNECTICUT, Norwich. The Shetucket Mills will place six new looms into their plant.

—KENTUCKY, Henderson. The Henderson Cotton Mills recently held their annual meeting of the stockholders, and authorized the directors to take steps looking to an increase of the plant. It is contemplated either to use the present mill for preparatory machinery and build a new weave shed, or build another mill similar to the present one.

—MAINE, Biddeford. The Laconia Co. will put in a new set of English cards in the near future, and they also contemplate putting in new looms.

—MASSACHUSETTS, Adams. Forty new looms are being placed in the No. 2 Mill of the Berkshire Cotton Mfg. Co.

—MASSACHUSETTS, Clinton. New machinery has been placed in the Lancaster Mills for the manufacture of outing cloth.

—MASSACHUSETTS, Lowell. The Boott Cotton Mills are putting in Rabbeth spindles through the entire plant, and have also refitted their picker house.

—MASSACHUSETTS, New Bedford. The Mount Pleasant Corporation, at a recent meeting of the stockholders, voted to increase their capital stock from $75,000 to $125,000.

—MASSACHUSETTS, West Warren. The Warren Cotton Mills will enlarge their power plant, putting in two boilers and an engine of 75 or 100 h.p. Plans are being prepared for improvements to other parts of their works.

—MASSACHUSETTS, Worcester. The L. D. Thayer Mfg. Co. will build an addition to their plant, which will be 100x40 feet in size, three stories. At present no new machinery will be placed, but it is reported that later if business improves they will increase their capacity 25 per cent.

—NEW HAMPSHIRE, Nashua. The Nashua Mfg. Co. have applied for authority to increase their capital stock from $1,000,000 to $2,000,000, and the Jackson Co. to increase from $600,000 to $1,300,000. They also ask for the right to build in any States in the United States.

Success of the Parks-Woolson New Double Shears.

The Parks & Woolson Machine Company, of Springfield, Vt., is having excellent success with its new double shears, which have proved a most pleasant surprise to many manufacturers. Among those lately placed are three at the Wanskuck Mills, Providence; two at the Arlington Mills, Lawrence; one at each of these mills: Botany Worsted Mills, Passaic; Linn Woolen Co., Hartland, Me.; Riverside Worsted Mills, Providence; Mississippi Mills, Wesson; Waterloo Woolen Manufacturing Company, Waterloo, N. Y.; C. H. & F. H. Stott, Stottville, N. Y.; Worcester Woolen Mills, Worcester; Oakland Worsted Company, Oakland, R. I. These new shears have now been on the market long enough to demonstrate that they are practical and economical machines.

BARRY, THAYER & CO.,
Cotton Commission Merchants,
32 INDIA ST., - BOSTON.
Special attention given to orders from woolen mills for high grades and Peruvians.

CHAS. J. WEBB & CO.,
Foreign and Domestic
WOOL, HAIR and NOILS,
142, 144 & 152 to 156 N. Front St.,
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FOWLES & CO.,
Importers and Dealers
WOOLS, NOILS, HAIR,
Shoddies, Waste, Flocks, Etc.
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MANUFACTURERS desiring to purchase RAW STOCK in large or small quantities, can be supplied.
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— IMPORTERS OF —
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Jacquard Harness Twines of all kinds on hand and made to order.
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FAST FANCY COLORS.
We make a specialty of dyeing Mode and Tan shade on hosiery and yarns, as also all other fancy shades. Colors absolutely fast. For particulars address
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Turkey Red Dye Works.
KELLER & COOPER,
110-112 Putnam St., PHILADELPHIA. Dyers of Turkey Red for all Purposes.
A specialty of Turkey Red to stand Bleaching. In Skeins and Warps.

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Knitting Silks, Ribbons AND Piece Silks

USED FOR TRIMMING KNIT GOODS.

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FOR ALL PURPOSES.

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SILK YARNS

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DEALERS IN

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Foreign and domestic

SPUN SILK YARNS AND NOILS

Importers of European and Asiatic Raw Silk.

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Dyer of all Kinds of Yarn,

Jasper Street above Clearfield, PHILADELPHIA.

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TWISTS OF ALL KINDS.

89 Grand Street, cor. Greene, NEW YORK.

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COTTON & COTTON YARNS, STOCKINET & JERSEY CLOTH.

OFFICE WITH BLODGETT & ORSWELL CO., Manufacturers of Glazed Yarns,

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PROVIDENCE DYE WORKS.

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. DIAMOND FAST BLACK .

FOR

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SAMPLE SKEIN FREE ON APPLICATION.

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In all Shades.

FAST BLACK ON HOSIERY that will not smut or crock a specialty; an entirely new process.

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Wrapping, Baling, Tobacco, Hop and Wool Twines. Cords, Ropes, Packing and Specialties.

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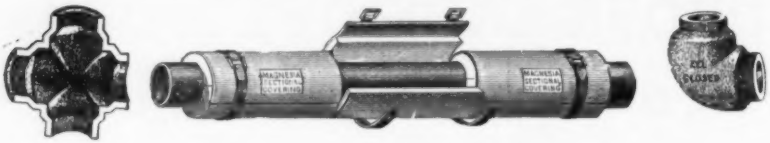

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Just the time to thoroughly cover the pipes and economize on coal. No time for "make shift" coverings either. Use the best non-conductor of all the Sectional Steam Pipe and Boiler Coverings.

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Philadelphia, Macan & Co., 1420 Callowhill St.
Baltimore, Wallace & Bro., 432 E. Pratt St.
Washington, Wm. B Morgan, Builders' Exch.
New Orleans, Delbert Engineering Company, 23 Union St
Memphis, Symmes & Co , 192 Front St.
Milwaukee, F. Sprinkman, 133 Sycamore St.
St. Louis, F. Bocler, 108 Walnut St.

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Detroit, S. P. Conkling, 20 Atwater St., East.
Des Moines, J. C. & R. B. Carter.
Minneapolis, Arthur L. Otto, 219 So. 3rd St.
Omaha, Spencer Otis, 307 S. Sixteenth St.
Denver, C. W. Badgley & Co., 18th & Market Sts.
Salt Lake City, Utah & Montana Machinery Co.
Butte City, Mont., R. W. James.
San Francisco, De Solla & Deussing, 2 California St.

Facts and Gossip.

—CONNECTICUT, East Lyme. The Niantic Mills Co. have filed articles of association under the name of the Niantic Mfg. Co. The capital stock of the corporation will be $75,000.

—CONNECTICUT, New Hartford. The report that the Greenwoods Co. will move their plant to the South is without foundation, although such extensions and enlargements of the business that make the coarser yarns will probably be in that direction.

—ILLINOIS, Chicago. The Springfield Woolen Mills have been incorporated, with capital stock of $100,000. The incorporators are Edward R. Thayer, John T. Capps and Walter H. Braddish. They will continue in the manufacture of cassimeres.

—MAINE, Lewiston. The Lewiston Mills Co., at a recent meeting, have unanimously adopted the plan to issue $400,000 worth of preferred stock, and will probably put the mill in operation.

—MAINE, Richmond. The Southard Mills have been sold to New Bedford and Fall River capitalists, Elias S. Willis, of New Bedford, purchasing a half interest. The plant will be used for the manufacture of cotton yarn. John W. Willis, of New Bedford, will act as superintendent.

—MASSACHUSETTS, Lowell. Mr. John Kilburn has resigned his position as agent of the Lawrence Mfg. Co., and is succeeded by Mr. Franklin Nourse, who for 15 years has been agent of the York Mfg. Co., at Saco, Maine.

—MASSACHUSETTS, North Dighton. The cotton yarn mill of the William Mason Mfg. Co. has been sold to J. D. Flint for $2875, with a mortgage of $15,000, making a total of $17,875

—NEW HAMPSHIRE, Dover. Mr. Thomas S. Edmands has resigned his position as treasurer of the Cocheco Mfg. Co., and will probably be succeeded by Arthur B. Silsbee, present treasurer of the Ipswich and Gilmanton Mills.

—NEW YORK, Auburn. The property of the Canoga Woolen Co., will be sold at auction, February 12.

—NEW YORK, Clayville. The Empire Woolen Co. has filed certificate reducing its capital stock from $250,000 to $125,000.

—NEW YORK, New York. Abraham C. Jennings has been appointed receiver of the Jennings Lace Works, which did business at 77 Greene St.

—NORTH CAROLINA, Reidsville. The Hermitage Cotton Mills were sold at public auction, January 16th. The property was bought in by Howell, Orr & Co., of Charlotte; Heath, Springs & Co., of Lancaster, S. C., and the Bank of Reidsville, representing a syndicate of creditors. The price paid was $24,200.

—PENNSYLVANIA, Barronvale. The Bittner Woolen Factory has been sold at assignee's sale, to William R. King, for $1925.

—PENNSYLVANIA, Bridgeport. The firm of James Lees & Sons will be reorganized and conducted by a company, of which Dr. John S. Lees, the surviving partner, will be secretary and treasurer. Edward Mason, of Germantown, will be president The company will continue in the manufacture of worsted goods.

—PENNSYLVANIA, Conshohocken. The Conshohocken Woolen Mills have decreased their capital stock from $250,000 to $200,000.

Mills Starting up.

—MASSACHUSETTS, Collinsville. The Collins Mills, which have been closed for a few weeks for repairs, have started up.

—MASSACHUSETTS, Dedham. The Merchants' Woolen Mill, which we reported had been sold to E. D. Thayer, of Worcester, will be started up at once.

—MASSACHUSETTS, Dedham. The Norfolk Mill, recently purchased by the Cochrane Carpet Co., has been started up, running on carpet yarns.

—MASSACHUSETTS, Lowell. The strike at the Faulkner Mill is at an end. The employees return at the old rate of wages, having struck against a reduction.

—MASSACHUSETTS, Otter River. The River Mills have been leased to the George Whitney Woolen Co., and have been put in operation.

—NEW HAMPSHIRE, Gilsum. The Gilsum Woolen Mfg. Co. have started up their plant, after a two months shut down.

—NEW JERSEY, Passaic. The Algonquin Woolen Mills, which have been shut down on account of a strike for an increase of wages, have again started up, and under the old schedule.

—NEW YORK, Hudson River Woolen Mill, Edwin Groat, proprietor, has started up on full time.

—ONTARIO, Campbellford. The Campbellford Woolen Mills, which have been shut down for some time, will be started up in the manufacture of woolens.

—OREGON, Bandon. Work will be resumed at the Bandon Woolen Mills, and new machinery will be placed to increase the variety of the output.

—RHODE ISLAND, Chapachet. Henry C. White, manufacturer of worsted suitings, will start up his mill shortly.

—RHODE ISLAND, Coventry. The Peckham Mfg. Co. have started up their mill.

—WEST VIRGINIA, Salem. The mill of the Salem Mfg. Co., which has been idle for two years, has tarted up.

—WISCONSIN, Racine. The Racine Woolen Mills, which have been closed for two months, will start in February.

—GEORGIA, Harmony Grove. The Harmony Grove Mills have started up their 84 new looms, which they have recently put in.

—MAINE, South Berwick. The plant of the Portsmouth Co., which we reported had been leased by W. A. Crompton, of Boston, has been put in operation.

—NEW HAMPSHIRE, Hillsboro Bridge. The Contoocook Mills Co. have started up their plant, after a shut down of two weeks.

—RHODE ISLAND, Pawtucket. The new weave shed of the American Yarn Mfg. Co. has been completed and the looms set up. They will be started as soon as yarn is ready from the other departments of the mill

—SOUTH CAROLINA, Columbia. It is reported that the Congaree Mfg. Company's plant will be put in operation in the near future by Pennsylvania capitalists. The mill has been idle for about two years.

THE "STIRLING" WATER TUBE STEAM BOILER.

Over 150,000 H. P. in use. 45,000 H. P. sold in 1892.

Absolutely safe at high pressure. Not an ounce of cast metal used in its construction. WE CAN PROVE to your entire satisfaction that the "Stirling" will give much higher average economy, with far less expense for repairs, than any boiler on the market to-day, and in proof of our claims we can refer you to some of the largest firms in the Country Please do us the favor to investigate before purchasing elsewhere.

Prices very reasonable. Catalogues, testimonials and complete information promptly furnished.

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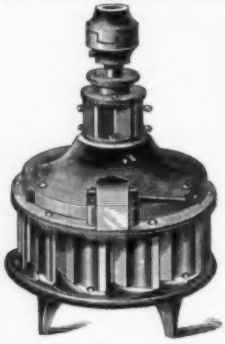

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Percentage:
Full Gate - 84
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NEW IMPROVED
STANDARD TURBINE.

It gives on either a Vertical or Horizontal shaft more power for its price, yields a greater percentage for water used, either with full or part gate drawn, and is the simplest, most durable and best finished wheel made. Send for illustrated catalogue and state head of water and power required.

Burnham Bros., York, Pa.
12 SOUTH GEORGE STREET.

Christiana Machine Co., CHRISTIANA, PA.

MANUFACTURERS OF

THE BALANCED GATE
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Suitable for Light or Heavy Service.

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SUITABLE FOR ANY SITUATION.

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Designs and Estimates Furnished on Application. Send for Catalogue.

SECTIONAL PIPE AND BOILER COVERING

Flat and Round Asbestos Steam Packing. Get our samples and quotations before placing your order. **It will pay you.**

H. F. WATSON CO. Erie, Pa.
NASHVILLE. NEW YORK. CHICAGO.

Enlargements and Improvements.

—MASSACHUSETTS, Medford. A new bleach house is being added to the Glenwood Works.

—MICHIGAN, Hastings. The Hastings Wool Boot Co. are putting in new carding machinery.

—PENNSYLVANIA, Catasauqua. The Unicorn Silk Mfg. Co. are changing over their machinery for the manufacture of velvet instead of plush, which they have hitherto been making.

—RHODE ISLAND, Saylesville. The new block house and singeing building at the Glenlyon Dye Works are nearly completed, and new and improved dyeing and finishing machinery will be put in, which will double the present capacity of the plant.

—RHODE ISLAND, Slatersville. A two story brick weaving shed is being built at the Slatersville Mills. Improvements are being made throughout the mill.

—SOUTH CAROLINA, Greenville. An addition will be erected to the Huguenot Mills, and new machinery placed, including 25 new looms.

—SOUTH CAROLINA, Langley. The Langley Mills company contemplate enlarging their plant.

—*SOUTH CAROLINA, Rock Hill. The Globe Cotton Mills company inform us that they will put in 2000 new spindles to replace old ones.

—*SOUTH CAROLINA, Union. The Union Cotton Mills company are now placing 2672 new spindles and 60 looms, in the manufacture of fine sheeting. This addition gives them in all 12,700 spindles and 360 looms.

—NORTH CAROLINA, Elkin. The Chatham Mfg. Co. are contemplating some improvements in the near future, and are in the market at once for the following machinery: Steam engine and boiler, a good burr picker, watchman's clock, hydro extractor, automatic sprinklers for house 200x200 feet, hydrants, etc. This mill was established in 1877, and is now, we believe, of three set capacity. They manufacture jeans, cassimeres, flannels, blankets, yarns, etc.

—*NORTH CAROLINA, King's Mountain. The Enterprise Mills will place 100 new looms into their plant, with slasher and necessary cloth room machinery. Brown sheetings will be made.

—NORTH CAROLINA, Raleigh. The Raleigh Cotton Mills will double the capacity of their plant, issuing stock to the amount of $50,000 for that purpose.

—PENNSYLVANIA, Chester. The Standard Spinning Co., manufacturing hosiery yarns, are putting in new cards into their plant.

—NEW JERSEY, Passaic. The Robertsford Worsted Mills are building an addition 60x60 feet, and intend to add new machinery in every department.

—NEW JERSEY, Somerville. The Somerville Woolen Mills will build an addition to their plant, which will double its capacity.

—PENNSYLVANIA, Clifton Heights. The Thos. Kent Mfg. Co. are building a new brick wool sorting house, 40x60 feet in size.

—PENNSYLVANIA, Philadelphia. Richard Hey & Sons will erect a stone addition to their plant on Main St., Manayunk. The structure will be one story high, 80x140 feet.

—VERMONT, Winooski. The No. 2 Mill of the Burlington Woolen Co., is being changed over into a bleachery and dye house.

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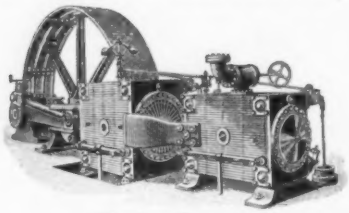

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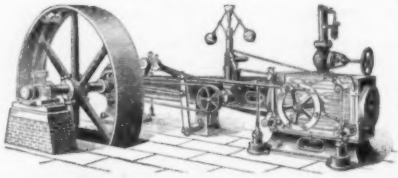

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Woolen.

New Mills.

—MAINE, East Madison. L. Anderson & Co., proprietors of the Coburn Woolen Mill, Skowhegan, and Edward Gledhill, of Providence, R. I., are interested in the building of a new four-set woolen mill at this place.

—MASSACHUSETTS, Chelsea. A worsted yarn manufactory is in contemplation at this place. The Board of Trade is pushing the matter.

Enlargements and Improvements.

—*MAINE, East Dover. Messrs. Dill & Hurst, whom we reported had rented the East Dover Woolen Mill, inform us that they will increase its capacity about one half, and will put in a new steam plant.

—MAINE, North Vassalboro. The Vassalboro Woolen Co. have put 12 new Crompton looms into their mill. It is understood that a complete change is to be made in the weave room.

—MASSACHUSETTS, Charlton City. Messrs. Akers & Taylor, satinet manufacturers, have added a new dye house to their plant.

—MASSACHUSETTS, Collinsville. The new weave shed which M. Collins is building, will be 96x126 feet, with basement, and will be ready for occupancy in three or four months. He has not yet contracted for his weaving and finishing machinery.

—MASSACHUSETTS, Westville. Messrs. Dufton Bros. have shut down their plant for a short time to make changes in the machinery. They are also building a new picker house.

—NEW JERSEY, Garfield. The Garfield Woolen Co. are building a new picker house, brick, 60x80 feet, and are doubling the capacity of their carbonizing plant by an addition 40x80 feet. When completed they expect to turn out 8000 pounds per day.

Silk.

New Mills.

—NEW JERSEY, Paterson. Johnson, Cowdin & Co., now operating about 200 looms on ribbons, will erect a new mill in the spring.

—NEW JERSEY, Town of Union. The West New York Silk Co. are building a new mill at this place.

—*NEW YORK, Sammonsville. In regard to the new silk mill which we reported a Mr. Payne would establish at this place, we now have the report that work has commenced on the building, getting it in shape for the machinery.

—NEW YORK, Unionville. The Unionville Silk Mills, recently destroyed by fire, will be rebuilt as soon as the insurance has been adjusted.

—*PENNSYLVANIA, Allentown. F. J. Bosta & Co. is the name of the new firm who will start a silk mill at this place. They will use one of the buildings of the Allentown Hardware Works, on Meadow and Tilghman Streets.

—*PENNSYLVANIA, Lehighton. It is understood that $35,000 has been subscribed for the new silk mill recently reported for this place, and that a company from Paterson, N. J., will locate here.

—*PENNSYLVANIA, Scranton. It is now definitely decided that Messrs. James Simpson & Co., of Paterson, N. J., will remove to this place. Papers have been signed between these manufacturers and Wm. Connell, who is to erect a building for them. Work will be commenced at once on the new structure.

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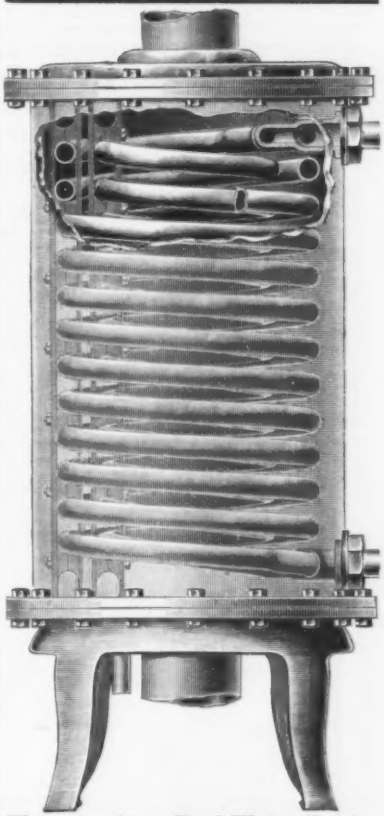

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—H. E. Collins & Co., sole sales agents for the Cahall vertical water tube boiler, manufactured by the Aultman & Taylor Machinery Co., of Mansfield, Ohio, have contracted for 250 h.p. boiler, using blast furnace gas as fuel, for the Seneca furnace, and for 500 h.p. for the Philadelphia Gas Co., at Kelly Station, Pa., and for two boilers for the Solvay Process Co., at Syracuse, N. Y. They are also building the boilers for the new sugar refinery, at Havana, Cuba.

—The Exposition Cotton Mills, Atlanta, Ga., have been North placing orders for their new mill. They bought all their revolving flat cards and drawing frames from the Pettee Machine Works, Newton Upper Falls, Mass.

—W. J. Faul, the well-known manufacturer of the famous Positive Lubricator, has opened an office at 4 Pearl St., cor. Milk, Boston, in charge of J. L. Fiske & Co., thus accomodating his greatly increased business throughout New England. These well-known Lubricator Candles have been adopted by many of our largest and best-known mills, and have met with universal favor. There is absolutely no drip where these lubricators are used, and this fact, together with their economical features and perfect lubricating properties, renders them exceedingly popular with all manufacturers, and especially in textile mills, where waste-oil drippings cause so much damage.

—The Tradesman Annual, published by the Tradesman, of Chattanooga, the oldest of Southern class papers, is little short of an encyclopedia of Southern industries. The issue not only deals with the present conditions and statistics, but reaches out and canvasses the future. Edward Atkinson, for instance, contributes an article on "The future Manufacturing Cities of the United States," and a score of other topics are treated by Southern editors and scientists, whose utterances have peculiar weight.

—The Pettee Machine Works, Newton Upper Falls, Mass., has just received an additional order on drawing frames for the Lynchburg Cotton Mill Co., Lynchburg, Va.

—The Alfred Woolen Mills, Alfred, Maine, are putting in one of Brown's combination napper and gig, built by the Parks & Woolson Machine Company. It will be used to finish fine blankets.

—James B. Young, who has for several years had charge of the weaving department of the Upper Mill of the New York Mills Co., in New York Mills, N. Y., has accepted a place as superintendent of a mill in St. Louis.

—George W. Keating, of Pittsfield, Mass., has moved to Pawtucket.

—Edwin Bartlett, of North Oxford, Mass., has just placed his order for revolving flat cards and drawing frames, with the Pettee Machine Works, Newton Upper Falls, Mass.

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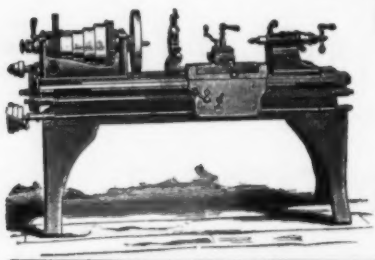

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MILL NEWS.

Cotton.

New Mills.

—*ALABAMA, Birmingham. At a meeting of the Board of Directors of the Birmingham Commercial Club recently, 12 business men subscribed $100,000 to form a stock company and erect a cotton mill. Mr. B. B. Comer is actively engaged in the enterprise.

—*ALABAMA, Gadsen. Contracts have been made for the new 25,000-spindle cotton mill to be erected at this place by the Dwight Mfg. Co. The main structure will be 75x450 feet, four stories high. 500 houses will be erected for operatives. Plans are being drawn for three additional mills to be erected later.

—ALABAMA, Montgomery. A meeting has recently been held by the business men of Montgomery, to consider plans for the erection of a 15,000-spindle cotton mill. It is stated that part of the amount has been subscribed.

—ALABAMA, Ozark. A movement is on foot for the erection of a cotton mill at this place.

—FLORIDA, Bronson. A cotton factory to cost $32,000, is projected at this place by J. D. Smith.

—GEORGIA, Albany. The business men of Albany, headed by Col. E. I. Wight, are discussing the erection of a cotton mill.

—GEORGIA, Cartersville. A project is on foot for the erection of a cotton mill at this place. G. H. Aubrey, J. J. Calhoun and B. S. Munford are interested parties.

—GEORGIA, Dawson. Subscriptions are being taken for the erection of a cotton mill at this place. E. I. Rainey is interested.

—GEORGIA, La Grange. The Pittsburg & Georgia Land Co. has been organized for the purpose of building a cotton mill and improving the land at this place. F. M. Langley is president of the company, and Jas. W. Drape, of Pittsburg, Penn., vice president.

—LOUISIANNA, Baton Rouge. A company of Eastern capitalists propose the erection of a cotton mill at this place, and offer to give half of $250,000, provided the citizens raise the remainder. A committee has been appointed to canvas the matter, among which are G. W. Garig, O. B. Steele, John D. Fisher and others.

—MASSACHUSETTS, Lowell. The Boott Cotton Mills are considering the question of building a mill in the South, for the manufacture of coarser goods.

—*MASSACHUSETTS, New Bedford. The Mount Pleasant Mills Corporation, recently incorporated, inform us that their new plant will contain 1400 spindles, in the manufacture of cotton yarn and cotton specialties. They will also put in three double sets woolen cards.

—*MASSACHUSETTS, New Bedford. In regard to the new cotton mill, which has been reported would be built at the Nash road, it is now understood that Joseph Mercer, a well-known cotton manufacturer, is interested, and will probably subscribed $40,000 The proposed capital stock is $300,000.

—MASSACHUSETTS, Taunton. It is reported that the Nemasket Mills company will build a new mill in the spring.

—NORTH CAROLINA, Charlotte. A cotton mill is being talked of at this place. No names are reported.

—NORTH CAROLINA, Dunn. A movement is on foot to erect a cotton factory at this place.

—NORTH CAROLINA, Elizabeth City. It is reported that a cotton factory will be built at this place.

—NORTH CAROLINA, Elkin. A new cotton mill is contemplated at Elkin, and it is understood that considerable stock has already been subscribed.

—*NORTH CAROLINA, Gibsonville. In regard to the new cotton mill at this place, we are officially informed that it will be called the Hiawatha Mfg. Co., and that they have an authorized capital of $100,000, of which $30,000 is already taken in stock. As we previously reported, Berry Davidson is president, and W. L. Kivett treasurer of the company. They will manufacture yarns, and will be ready for production by the first of March, 1895.

—NORTH CAROLINA, Goldsboro. We have the report that another cotton factory is contemplated at this place. It is understood that $10,000 is promised if another $10,000 can be raised by subscription.

—NORTH CAROLINA, Salisbury. A new cotton factory is talked of at Salisbury, and it is understood that much of the stock has been bought by Northern capitalists. The size of the plant has not yet been determined.

—*NORTH CAROLINA, Shelby. In regard to the new cotton mill which has been previously reported at this place, we now have the report that T. D. Lattimore and E. Y. Webb are interested. A $200,000 mill is proposed, to be erected on the installment plan.

—*NORTH CAROLINA, Wilmington. The new cotton mill at this place, which we have several times reported, will be named the Wampum Cotton Mill. About $50,000 of the stock has been taken, and we understand that the full amount has been subscribed.

—OHIO, Akron. A new company is being formed at this place, with capital of $50,000, to manufacture binder twine and cordage.

—*SOUTH CAROLINA, Bath. Officers have been elected for the new Aiken Mfg. Co., who are as follows: F. B. Henderson, president, Chas. Estis, treasurer. Plans for the building will be made at once, and bids will be received immediately after.

—SOUTH CAROLINA, Blacksburg. The Blacksburg Building & Loan Association are interested in the erection of a cotton mill at this place.

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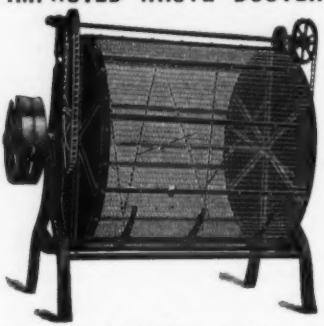

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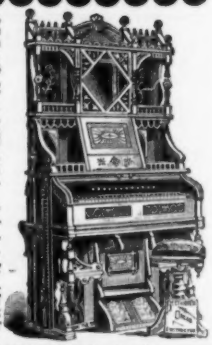

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856 **Superintendent and Manager.** Experienced on blankets, flannels dress goods, wool and worsted. Has had thirty years' experience. Can give best of references. Unmarried. Salary and part interest can be arranged with proper parties. Has a knowledge of trade, having sold goods direct for the mill.

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911 **Colored cotton, worsteds, and** cassimeres, 11 years superintendent in 3 different mills, 44 years of age, married.

822 **Cotton flannels, all grades.** Desires position as superintendent, or assistant superintendent. Age 33; married.

996 **Cotton Mill Superintendent,** has had sixteen years' experience on all classes of yarns, print cloth and sheetings. Has held responsible positions, and gives first-class references as to ability and character. Age 45, single.

1056 **Cotton Superintendent.** Experienced on fine and coarse yarns, rope, twine, mops, etc. Age 29, unmarried. Good references. Salary $30 per week.

DESIGNERS.

1014 **Designer, asst. supt., or supt.,** in medium or large mill. Has worked on cassimeres, unions, overcoatings, worsteds, solid, and cotton warp, and cotton filled worsteds. Excellent references.

755 **Young and Ambitious,** has worked on fancy cassimeres and cheviots, but principally worsteds. Would take a position as designer.

690 **Designer.** Fancy worsteds, cassimeres. Would also like the position of assistant superintendent. Refers to any firm ever worked for. Salary to suit the times.

WOOLEN WEAVERS.

920 **Worked in some of the best** N. E. mills. Dress goods, unions, cassimeres, worsteds and cheviots. 28, and married. $3.00 or so.

702 **Reliable overseer** of weaving. Son is loom fixer. Worsteds, shawls, flannels, all kinds of woolen goods, ginghams. Good references. Age 50, married.

1020 **Woolen weaver, first class man.** Experienced on cassimeres, dress goods, shawls, flannels, etc. Good references.

1004 **Now in the West,** good weaver. Experienced also in the best Eastern mills. Has worked on cassimeres, meltons, cheviots, beavers, cloakings, worsteds. Is 38 and married.

1052 **A1 Cotton Weaver.** Has worked for 12 years as overseer of weaving in one of the largest cotton mills in New England. Age 39, married. The best of references. Will work for $3 per day to start.

614 **Boss weaver and designer** has had a wide experience on cassimeres, dress goods, worsteds, casket cloths, beavers, flannels, blankets, doeskins, satinets and jeans. 45 and married. Salary $3 or so.

741 **Woolen and Worsted Weaver** on fancy worsted, cassimere and dress goods. Good references.

930 **Asst. Supt, overseer of weaving** and designing. Has worked on all kinds of men's wear, dress goods, kerseys beavers, etc. Age 43; married.

838 **Pattern Weaver.** Woolen, worsted and silk dress goods, always on Knowles looms.

COTTON SPINNERS.

555 **Ring spinning,** spooling, warping twisting, reeling, winding and quilling. Age 38, married.

725 **Ring spinning overseer** with experience on a wide range of goods. Age 28 and married. Salary moderate.

964 **Cotton spinner,** hosiery, yarns, as well as all others. Overseer eight years; preaviously second hand twelve years. Used to rapid changing over on either mules or frames. Would go on road.

1058 **A Cotton Spinner of the First** Rank. Understands thoroughly twisting, drafting, and spinning the different classes of cotton. A good mechanic and an expert on copping. Has worked on flannels, prints, fine cotton underwear and sale yarns. Age 40, married. Salary $3 to $4 per day. Will go anywhere in the United States.

805 **Spinning, spooling, slashing,** etc. Is young and capable, comes from a race of first class cotton men. Would also take a position as superintendent of yarn mill; salary moderate.

DYERS.

1026 **Overseer of Dyeing.** A first class dyer, 40 years of age, and married. Has worked on woolen and worsted piece goods, slubbing, worsted and mohair yarns. Will work for $4 per day and upwards. Can give best of references, and can take position at once.

1057 **A Good Dyer.** Is experienced on cotton and woolen hosiery, eider downs, cashmerettes, dress goods, linings, piece warps, skein, fancy and raw stock. Age 25 years, married. Salary between $3 and $4 per day.

904 **Worsteds, Meltons**, mixtures, and cassimeres. Is a good stayer. Married; with a family; age 44. Wages $2.50 or $3.00.

1013 **Dyer on wool yarn and piece.** Is 43 and married. Has had 25 years experience in some of the principal woolen mills in Germany.

806 **Has colored hosiery**, woolen yarn, piece goods, slubbing, raw stock and run indigo vats with success. Salary moderate.

900 **Cotton**: long and short skein, hosiery piece dyeing, and raw stock; has worked in good mills. 33 years old; married $3.50 or so per day.

987 **Dyer**, foreman or second hand would like position in a knitting factory or flannel mill. 25 years' experience in English and American mills. Age 43. $2 per day for steady job.

798 **Now employed**, giving good satisfaction; Age 26, married, experienced on wool, woolen and worsted yarns and piece goods, cotton and cotton yarns.

765 **All kinds of cotton goods** either yarns or piece, can take a position at short notice. A good overseer, age 50, married.

1031 **Dyer**, who has worked on raw stock, wool and shoddy and woolen yarns of all grades from fine worsteds down to low carpet yarns, piece goods, heavy woolens, desires position. Age 40, married. Has worked with one mill eight years and can give good references.

WOOLEN CARDERS.

1030 **Woolen Carder.** A first class man with good references and wide experience desires position as overseer of woolen carding. Has worked on from fine wool to low shoddy. Age 27. Married and can take position at once. A trial will show that he is the right man.

787 **Capable man.** Carder. 42 years old, married. Good experience and well recommended. Has worked on beavers, cassimeres, dress goods, all kinds of mixes and hosiery.

178 **Is the man** conservative mills are looking for; 38 with a family, desires pleasant town to settle down in. Excellent carder on wool or cotton and shoddy mixed dress goods.

913 **First class woolen carder** hosiery, dress goods, overcoatings, cloakings, cassimeres, (all wool and union), kerseys, meltons, etc. 35, married. $3.00 and up.

1051 **Has had 27 years' experience** in woolen mills. Has carded satinets, hosiery, flannels, cassimeres, shoddy and all sorts of stock and goods. Excellent references. Age 45, married. Salary not less than $3 per day.

606 **Good Carder wants position as** Overseer. Has worked on satinets, cassimeres, knitting yarns and dress goods. Will go anywhere, and will consider any reasonable offer. Age 31. Married.

WOOLEN SPINNERS.

212 **First Class Overseer**, has worked on all classes of goods and in some of the most successful mills. Age 30; married.

980 **Wide experience** as boss spinner on variety of stocks: Johnson & Bassett, Davis & Furber, Woonsocket Mule, and the Wright Spinner. 45 years old, married; best of references. Salary moderate.

1017 **Boss spinner** on stock for cassimeres, beavers, cheviots, flannels and woolen shirting. Age 29, married. Wages $2 50.

941 **A Very Efficient Man.** Used to most every class of woolen goods; age 28, married. Salary moderate.

932 **Carder and spinner** in 3 to 5 set mill. Has worked on fine dress goods and cassimere stock. Age 29; married Wages $3.00, or so

959 **Overseer of worsted Spinning**. Six years' experience. Has worked on all numbers. 26 years old, married. Salary $2.50 to $3 per day.

COTTON CARDERS.

645 **Course and fine**, colored and white. Brought up in good mills. Thoroughly understands all makes of machinery in his department.

826 **Has worked in best New England** mills; as second hand, and capable of taking an overseership in medium or small mill. Age 31.

922 **All kinds white or colored** from 1 2 to 14 hank. First-rate experience and references. Age 44, married. Salary $3 50.

502 **Is an excellent overseer** on combed, carded, or colored stock; was in charge of a few of the best rooms in the country. 46 years of age, salary very moderate.

978 **Overseer of Carding**, coarse and fine yarns and combings. Will work for $2.50 and upwards. 46 years old, married.

910 **Is a good carder** on plain, colored and fancy white stock. Age 41. $2.50 and up.

WOOLEN FINISHERS.

193 **Woolen Finisher of first rank**, all classes of woolens from loom to case. Age 44; married.

828 **Desires a position in finishing** room; as second hand preferred. Is bright, intelligent, and capable of an overseer's position, acquainted with flannels, fancy suitings, cassimeres, overcoatings, carriage cloth, fancy mixed beavers. Age 23.

832 **A young finisher** desires a position as overseer. Has worked on all wool cassimeres, suitings, dress goods and cloakings, worsted suitings, and cotton and worsteds, union cassimeres and low grade shoddy. Age 28; married. Salary $3.00 or so.

FINISHERS.

905 **Chinchillas.** Wants position in charge of finishing. Has knowledge of about 150 styles in this line. Age 32; married. Pay moderate.

843 **Boss Finisher** of 13 years' experience on all kinds of cut and fashioned shirts and drawers. Understands all kinds of machines used in same. 41 years old, married. Salary $3.00 per day.

1007 **Dress goods and fine meltons** prefered, but has worked on all kinds woolens. N. Y. or N. E. states. Age 22, salary moderate

358 **Heavy overcoatings,** beavers, chinchillas. Never held overseer's position, but second hand in fine mills. Would start low.

783 **Competent overseer** of wet and dry finishing. 46 years old, married. Has first-class recommendations. Many years experience on all classes of goods. Wishes to remain in New England. Fair salary.

734 **Woolen and worsted superinten** and boss finisher. Has worked on broadcloth, flannels, carriage cloths, worsted coatings, dress goods, linings and cotton warps. Has had 20 years experience on mixes in mungo, shoddy, noils and cotton.

COTTON WEAVERS.

837 **Sheetings, twills, satteens,** fancy goods, and leno. Age 34, married.

949 **Overseer of Weaving,** or assistant superintendent. Experienced on sail and fancy duck, sheeting, shirting, drills, cottonades, etc. Will go anywhere. 50 years old, married. Wages $3 to $4 according to size of room.

429 **Has worked on fine goods** of all kinds as overseer. Salary according to position. Age 28.

176 **South preferred.** Understands fixing a loom, and not afraid to do it. Gets on well with Southern help.

KNITTERS.

1054 **Boss Knitter.** Has worked on hosiery in wool and cotton. 40 years old, married. Good references. Will work for $75 or $80 per month. Will also take a position as machinist.

1025 **Superintendent or Overseer of** Knitting. Has been boss knitter with one mill ever since it started, 12 years ago. Has had long experience, and can give good references. Married. 46 years of age.

1028 **Overseer of Knitting.** Has worked on cotton underwear and hose, and held position as second hand for over seven years. He is 27 years old and married. Is willing to start at $3 per day, with prospects of more.

773 **An experience** on all kinds of underwear and plush. A good man, 45 years old and married. Overseer's position anywhere except the South.

1024 **Overseer of Knitting.** Is at present employed, but desires to change. Has had over six years' experience on wool and cotton, heavy and light. Will accept any reasonable salary.

592 **Knit Goods Finisher.** Is desirous of obtaining a position as superintendent or overseer of finishing and seaming rooms, in a mill making knit goods on circular machines. Has had a long experience in manufacturing, and understands the business in all its branches. Age 42 years, married.

815 **Superintendent** rib, circular, or fashioned. Underwear and hosiery, cotton, merino and worsted. A good man. Age 45,

915 **Wants position as boss knitter** or superintendent in hosiery mill. 21 years old, unmarried, salary $3.00 and up.

MISCELLANEOUS.

914 **Mechanical engineer and cotton** mill superintendent, English, of high character and ability, wants a position in the South as superintendent, or would undertake the erection and starting up of cotton mills.

840 **Beaming or Charge of Beaming.** Has worked on ginghams, tickings, shirtings and dress goods. Age 29; married; salary as beamer $2.50; in charge $2.75.

927 **Boss Dresser Tender.** Five years overseer on stock for cassimere, flannels, worsteds, kerseys, beavers, dress goods and all other kinds of woolens.

928 **Foreman dyer and finisher** of knit goods. Very extended experience on all kinds of cotton, wool, and mixed goods, in hosiery, underwear, and overshirts.

972 **Situation wanted** by a man capable of taking charge of dressing in a woolen mill, or would run a frame. Has had six years experience. 23 years old, married.

998 **First-Class Sewing Machine Fixer** and Finisher in knitting mill. Has worked on all kinds of shirts and drawers. Furnishes best of references. 45 years old, married. Wages $2.50 to $3.50 per day.

533 **Situation wanted** as superintendent in flax, hemp or jute mill. Can make all kinds of yarn, threads, sail twines. Best of references as to character and ability. Twenty years experience in the same line, both wet and dry spinning.

800 **Office or cloth room,** thoroughly understands the cotton mill from this end. Desires paymaster's or some like position; 26 years old; married, salary moderate.

771 **An excellent Supt.** for any woolen mill needing a man with his experience on cassimeres and dress goods. A good manager of help. Salary moderate.

760 **Desires advancement** in responsibility. Superintendent or Asst. superintendent and designer. Salary moderate; experience on fancy cassimers, cheviots and meltons. 31 and married.

809 **American, 24 years of age,** trained in foreign technical schools and mills; is practical in all branches of worsted yarn manufacture and is a good machinist. Desires position as overseer, assistant superintendent or superintendent.

934 **Ginghams, cotton dress goods,** shirtings, cotton and woolen, both fine and coarse, also cheviots. High up in his knowledge of these goods. Experience gained in Scotch mills. Is a practical dyer and finisher, and a practical designer. Desires a position as agent or superintendent, or as superintendent and designer. Age 42; married.

1008 **Wants boss job in flannel mill.** Northern New England preferred, also a good man for dresser or fixer, has worked on flannels, serges, cheviots, fancy dress goods. Is 34, married.

1005 **Boss wool sorter, worsted** prefered. Has worked in best New England mills. Can take position at once.

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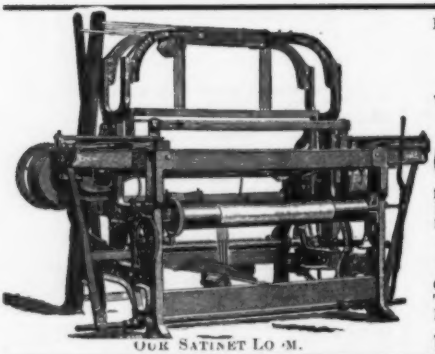

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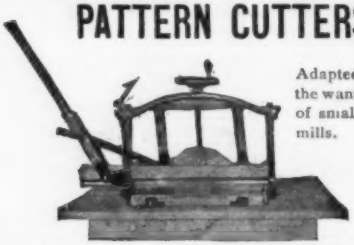

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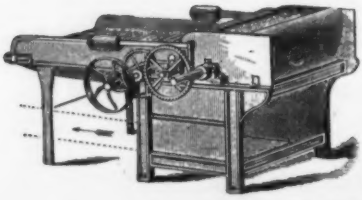

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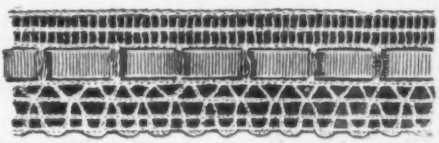
Lace  Edgings

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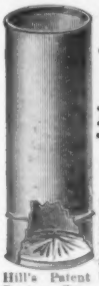

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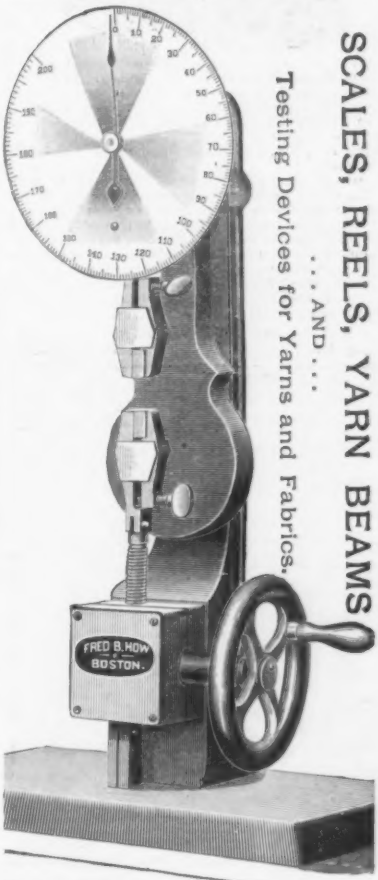

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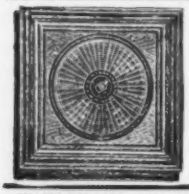

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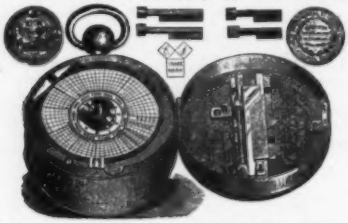

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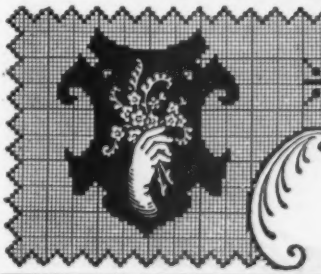

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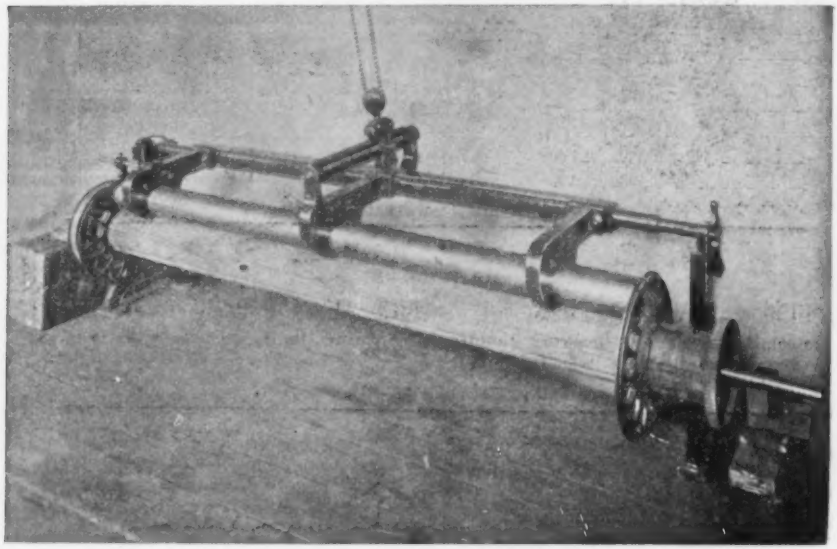

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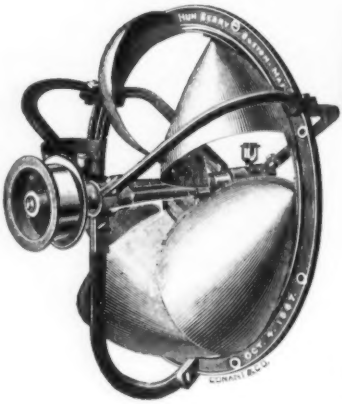

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